USSTRATCOM

Global Innovation and Strategy Center

Social Media

Spring 2010 – 10-02

May 2010

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REPORT DOCUMENTATION PAGE

1. REPORT DATE *(DD-MM-YYYY)* 11-12-2012	**2. REPORT TYPE** Technical Report	**2. DATES COVERED** *(From - To)* Feb 2010 – May 2010

4. TITLE AND SUBTITLE

Social Media

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Bautch, Anne; Benash, Shannon; Dilts, Ty; Fripp, Chris; Obermeyer, Meghan; Petersen, Stephanie; Smith, Justin

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Global Innovation and Strategy Center Intern Program, Omaha, NE

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

United States Strategic Command J9 Intern Program, Offutt AFB

10. SPONSOR/MONITOR'S ACRONYM(S)
USSTRATCOM

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for Public Release

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Military operations define a broad realm of actions from conducting acts of war to providing humanitarian assistance, supporting civil authorities, and ensuring the legitimacy of operations to the public. It is imperative that the military has the best capabilities in order to carry out these operations as effectively and efficiently as possible. Social media provide the military with a multitude of capabilities that can aid in its efforts. Specifically, social media tools include blogs, social networking sites, wikis, and multimedia sharing sites among others. All of the aforementioned tools have been found to have legitimate uses for aiding military operations. In an effort to further social media usage in the Department of Defense (DoD), the Office of the Secretary of Defense issued Directive-Type Memorandum (DTM) 09-026 "Responsible and Effective Use of Internet-based Capabilities." This memorandum allows the usage of social media as a default and sets forth general guidelines for their use. However, it is important to understand that this form of media does introduce a certain amount of risk to the military's cyber infrastructure. These risks must be addressed and properly mitigated to assure the safety of the networks and information contained within. It is obvious to the DoD that there must be more research into guidelines governing social media in order to safely use them, as the DTM delegates responsibilities to individual DoD components for establishing better directed guidelines that will form a new umbrella issuance in August 2010. The project focused on assessing the value of utilizing social media in military operations. Parallel to the assessment of value was the analysis of risks that the military would face as a result of employing these technologies.

15. SUBJECT TERMS
Social Media, Social Networking, USSTRATCOM, GISC

16. SECURITY CLASSIFICATION OF: Unclassified			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES** 122	**19a. NAME OF RESPONSIBLE PERSON** Matthew Bradley
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. TELEPHONE NUMBER** *(include area code)* 402-232-7771

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ACRONYMS

AIM	America Online Instant Messenger
AKO	Army Knowledge Online
ANSF	Afghan National Security Force
APAN	All Partner's Access Network
CIO	Chief Information Officer
COA	Course of Action
CSTC-A	Combined Security Transition Command-Afghanistan
DCO	Defense Connect Online
DHS	United States Department of Homeland Security
DISA	Defense Information Systems Agency
DoD	Department of Defense
DoS	United States Department of State
DTM	Directive-Type Memorandum
EOP	External Office Presences
FARC	Fuerzas Armadas Revolucionaries de Columbia-Ejercito del Pueblo
GOC	Global Operation Center
GPS	Global Positioning Systems
IC	Intelligence Community
IM	Instant message
IP	Internet protocol
ISC	Internet Storm Center
IT	Information Technology
JCTD	Joint Capability Technology Demonstration
JWICS	Joint Worldwide Intelligence Communications System
MOOTW	Military Operations Other Than War
MSCA	Military support to civil authorities
NASA	National Aeronautics and Space Administration
NGO	Non-governmental Organization
NIPRNET	Non-classified Internet Protocol Router Network
NSA	National Security Agency
NSFnet	National Science Foundation Network
NTM-A	North Atlantic Treaty Organization Training Mission-Afghanistan
OSD	Office of the Secretary of Defense
OPSEC	Operational Security
PSYOP	Psychological Operations
RSA	Rivest, Shamir, and Adleman
RSS	Really Simple Syndication
SANS	SysAdmin, Audit, Network, Security
SIPRNET	Secure Internet Protocol Router Network
SKI-Web	Strategic Knowledge Integration-Web

SMS	Short Messaging System
TISC	Transnational Information-sharing Cooperation
TSA	Transportation Security Administration
UCLA	University of California Los Angeles
UCSB	University of California Santa Barbara
UK	United Kingdom
URL	Uniform Resource Locator
US	United States
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
USSOUTHCOM	United States Southern Command
USSTRATCOM	United States Strategic Command

PREFACE

This report is the product of the United States Strategic Command (USSTRATCOM) Global Innovation and Strategy Center (GISC) internship program. A team of graduate and undergraduate students at the University of Nebraska-Lincoln, University of Nebraska-Omaha, and Creighton University worked together with the goal of providing a multidisciplinary, unclassified, non-military perspective on important Department of Defense issues.

 The team was tasked with assessing the value of utilizing social media in military operations. This includes internal and external operations within USSTRATCOM, the DoD, and other agencies within the Federal Government.

This project occurred between February and May 2010, with each team member working up to thirty-two hours per week. While the GISC provided the resources and technology for the project, it was solely up to the team to develop the project design, conduct the research and analysis, and provide appropriate recommendations.

EXECUTIVE SUMMARY

Military operations define a broad realm of actions from conducting acts of war to providing humanitarian assistance, supporting civil authorities, and ensuring the legitimacy of operations to the public. It is imperative that the military has the best capabilities in order to carry out these operations as effectively and efficiently as possible. Social media provide the military with a multitude of capabilities that can aid in its efforts. Specifically, social media tools include blogs, social networking sites, wikis, and multimedia sharing sites among others. All of the aforementioned tools have been found to have legitimate uses for aiding military operations. In an effort to further social media usage in the Department of Defense (DoD), the Office of the Secretary of Defense issued Directive-Type Memorandum (DTM) 09-026 "Responsible and Effective Use of Internet-based Capabilities." This memorandum allows the usage of social media as a default and sets forth general guidelines for their use. However, it is important to understand that this form of media does introduce a certain amount of risk to the military's cyber infrastructure. These risks must be addressed and properly mitigated to assure the safety of the networks and information contained within. It is obvious to the DoD that there must be more research into guidelines governing social media in order to safely use them, as the DTM delegates responsibilities to individual DoD components for establishing better directed guidelines that will form a new umbrella issuance in August 2010.

The project focused on assessing the value of utilizing social media in military operations. Parallel to the assessment of value was the analysis of risks that the military would face as a result of employing these technologies.

After conducting a literature review, speaking with experts ranging from cyber security to public affairs, and hosting a roundtable in Washington D.C., it became clear to the team that successful social media usage in the military depends on proper risk mitigation techniques. Proper risk analysis of individual sites as well as training of personnel must occur before allowing open access.

The team was allotted 90 days to conduct unclassified, open-source research, write a comprehensive report, and provide an executive briefing to the U.S. Strategic Commander and Staff, U.S. government agencies, academia, industry, and contributors. The team proposed the following strategies for successful implementation and usage of social media:

- Perform a risk analysis of each site considered for usage, and restrict those found to be exceedingly risky

- Work with major social media sites to contract acquisition controls for the military and government

- Post a "Restricted Topics" list at all workstations with external social media access

- Continuously train users on the proper usage of social media

- Reward personnel that identify novel and effective uses of social media

- Utilize a peer-to-peer monitoring system to promote responsibility and uphold OPSEC

- Perform a cost-benefit analysis for virtualization or isolated workstations to further avert the risks social media pose on the NIPRNET

INTRODUCTION

On February 25, 2010 the Office of the Secretary of Defense (OSD) released Directive-Type

Memorandum (DTM) 09-026 - "Responsible and Effective Use of Internet-based Capabilities,"

allowing for the usage of "Internet-based capabilities, including social networking services" on

the Non-Classified Internet Protocol Router Network (NIPRNET).[1] Though internal social media

sites (e.g., GovLoop) have been used by the DoD for more than two years, the new policy allows

for usage of external social media sites (e.g., Facebook) on the NIPRNET as well.[2] The policy

states that it "recognizes that Internet-based capabilities are integral to operations across the

DoD."[3]

Although the DTM favors the use of social media, the founder of Internet Security Advisors

Group and former NSA employee, Ira Winkler, believes that external social networking sites

should never be accessible on the NIPRNET.[4] Mr. Winkler explained that social media are

highly targeted by hackers, making protection of these sites nearly impossible.[5] Many cyber

security experts are also dismayed by the policy, citing occurrences of social engineering,

Operational Security (OPSEC) breaches, and other security risks that could leak sensitive

information and damage DoD cyber infrastructure. One example of the risks associated with

social media is the website WikiLeaks.com, which can be used to anonymously post sensitive or

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[1] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities." *Office of the Secretary of Defense* (2010): 1-9. Print.
[2] "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."
[3] "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."
[4] Winkler, Ira. Personal interview. 2 March 2010.
[5] Winkler, Ira.

classified information for everyone to see. It is apparent that social media can pose a serious risk to DoD and U.S. government interests if not used in a safe manner.

The DTM has become moderately controversial with arguments for and against social media use in the DoD. The purpose of this report is to provide a balanced, thorough analysis of the benefits and risks social media hold for military operations. Included in the discussion is a look at the cultural shift in communication towards social media, an overview of internal and external social media tools, a benefit and risk analysis, and social media policy trends in the public and private sectors. Additionally, the team has formulated actionable recommendations for social media in the DoD.

CULTURAL SHIFT IN COMMUNICATION

Traditional Media

The term "traditional media" refers to platforms for communication that existed before the advent of the Internet. Examples of traditional media sources are newspaper, radio, and television. Once created and distributed, content on traditional media platforms cannot be easily altered. Traditional media can be described in terms of content authors and passive consumers.

Traditional media sources have dominated the landscape of news distribution, especially since the introduction of radio and television. Network producers have by and large made the decisions as to what constitutes news and what can and cannot be marketed on the airwaves. It has mainly been a one-way, top-down system governed by elite media gatekeepers because of the once steep costs of equipment needed to create and distribute content. With the arrival of affordable personal computers and the Internet, the line has blurred between traditional media controlled by media conglomerates and the expanding size of individual influence through Web 2.0 platforms.

Web 1.0 to Web 2.0

The advent of the Internet marked the beginning of what is popularly referred to as the Web 1.0 environment. Web 1.0 was characterized by static spaces where owners of websites published content for readers to digest, much like that of traditional media. It was largely a unidirectional environment where the message or content was pushed from large companies to users. As shown

in **Table 1** the transition to a Web 2.0 environment marked several changes in how users,

content, and data interact.

Web 1.0	Web 2.0
Owner published content	User created content
Links to other pages	Search engines
Directories and classifications	Tagging and user ranking
People and data	'Mashups' integrate people and data
Static Content	User participation, and collaboration

Table 1: Web 1.0 and Web 2.0 Attributes[6]

Web 2.0 refers to Web-based applications and services that enable user participation,

collaboration, and knowledge-sharing. Web 2.0 capabilities have drastically affected the ways in

which individuals gather information and communicate with others.

Tim O'Reilly, founder and CEO of O'Reilly Media coined the term Web 2.0 and defined it this

way:

> Web 2.0 is the network as a platform, spanning all connected devices; Web 2.0
>
> applications are those that make the most of the intrinsic advantages of that platform:
>
> delivering software as a continually-updated service that gets better the more people use
>
> it, consuming and remixing data from multiple sources, including individual users, while
>
> providing their own data and services in a form that allows remixing by others, creating

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[6] Drapeau, Mark, and Linton Wells II. "Social Software and National Security: An Initial Net Assessment." *Center for Technology and National Security Policy, National Defense University* (2009): 1-43. Print.

network effects through an architecture of participation, and going beyond the page

metaphor of Web 1.0 to deliver rich user experiences.[7]

This change in communication is a move from asynchronous user communication to

synchronistic communication. For example, in a Web 1.0 world users would have time to

respond to an email, and it would not be updated in real-time like instant messaging in a Web 2.0

world.

Social Media

Web 2.0's utilization of real-time information-sharing forms a base for social media to build

upon. Social media refers to "applications that inherently connect people and information in

spontaneous, interactive ways."[8] The major addition social media has made to Web 2.0 is the

connection of people. The tools that fall under the umbrella of social media (listed and described

in the *Overview of Social Media Tools* section) are all used to connect people, whether that is

through words, pictures, video clips, etc. This is an important distinction because they not only

allow for information exchange, but also have become a whole new medium through which

people communicate interpersonally and to the masses. This has created new activities for

networking, including 1) image management through building an audience to increase social

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[7] Drapeau, Mark, and Linton Wells II.
[8] Federal Chief Information Officers Council. "Guidelines for Secure Use of Social Media by Federal Departments and Agencies". *Information Security and Identity Management Committee (ISIMC), Network and Infrastructure Security Subcommittee (NISSC), and Web 2.0 Security Working Group (W20SWG)* (2009): 1-19. Print.

standing, 2) the creation of specialized social groups to help solve problems, and 3) participation in like-minded groups that allow participants to share their stories and link to other content.[9]

Culture Shift

An early researcher of new media (a precursor to social media), Dr. Russell Neuman, commented in 1991 that "we are witnessing the evolution of a universal interconnected network of audio, video, and electronic text communications that will blur the distinction between interpersonal and mass communication and between public and private communication."[10] Dr. Neuman went on to argue that new media would:

- Alter the meaning of geographic distance

- Expand the capacity for a substantial increase in the volume of communication

- Increase the speed of communication

- Create opportunities for interactive communication

- Allow separate forms of communication to overlap and interconnect[11]

Traditional media has yielded ground to newer communication platforms as Dr. Neuman forecasted. Take, for example, the capacity of the website GoToMeeting.com, which allows people from across the globe to share audio and visual and edit documents in real-time. Prior to advanced interconnected networks, one would need to plan a meeting time and physical location to overcome the geographical distance.

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[9] Rainie, Lee.
[10] Neuman, W. Russell. *The Future of the Mass Audience*. New York: Cambridge University Press, 1992. Print.
[11] Neuman, W. Russell.

Additionally, the expanded capacity for information in social media can be seen by comparing the length of time it took all major television networks to produce the same amount of video that YouTube shows to users in one day. Every day over two billion videos are streamed from YouTube.[12] This daily amount far surpasses the total number of hours that has been produced by the three largest television networks combined since 1962.[13] In terms of reaching an audience of 50 million users, it took radio broadcasters 38 years, television producers 13 years, and the internet just four years.[14] Further evidence demonstrates a shift away from traditional media. For example, in 2008, more people watched *Saturday Night Live* skits featuring Tina Fey as Sarah Palin online than on TV.[15] Traditional newspapers are experiencing record declines with 24 out of 25 of the largest U.S. newspapers experiencing record drops in paper circulation since 2007.[16][17] Meanwhile, there is a rise in readers of online newspapers which are up 30 million in the last five years.[18] Books are also making a transition to a digital format: during Christmas of 2010, Kindle eBooks outsold paper books.[19] Traditional advertising is also in steep decline. In 2009, traditional advertising spending notably fell:

- Newspaper advertising was down 18.7%[20]

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[12] "YouTube – The Leader in Online Video." *Video University*. 12 May 2010. <http://www.videouniversity.com/articles/youtube-the-leader-in-online-video>

[13] "YouTube – The Leader in Online Video."

[14] "Cyberschoolbus Briefing." *United Nations Cyberschoolbus*: 1-8. Print.

[15] "Solutions Research Group." *SRG*. 11 May 2010. <http://www.srgnet.com/us/index.html>

[16] Robinson, James. "UK And U.S. See Heaviest Newspaper Circulation Declines | PaidContent." *The Economics of Content | PaidContent*. 17 June 2010. Web. 22 July 2010. <http://paidcontent.org/article/419-uk-and-u.s.-see-heaviest-newspaper-circulation-declines/>

[17] "Solutions Research Group."

[18] Fisch, Karl. "Did You Know? (Shift Happens)." *Shifthappens*. 12 May 2010. <http://shifthappens.wikispaces.com/versions>

[19] "Kindle Ebooks Outsell Real Books on Christmas." *Social Media News and Web Tips – Mashable – The Social Media Guide*. 11 May 2010. <http://mashable.com/2009/12/26/kindle-ebook-sales/>

[20] Clifford, Stephanie. "A Look Ahead at the Money in the Communications Industry." *The New York Times - Breaking News, World News & Multimedia*. 03 August 2009. Web. 07 July 2010. <http://www.nytimes.com/2009/08/04/business/media/04adco.html?_r=1>

- TV advertising was down 10.1%

- Radio advertising was down 11.7%

- Magazine advertising was down 14.8%

Meanwhile, digital advertising is growing rapidly:

- Mobile advertising is up 18.1%

- Web advertising is up 9.2%[21]

All of these indicators point to a tipping point from people using traditional media to new media.

Table 2 further illustrates this trend as most traditional media has experienced a drop in usage from 2006 to 2008.

Traditional Media Usage (% of Consumers)		
Media	*% of US Consumers Using*	
	2006	*2008*
Major network TV News	71%	65%
Local newspapers	69%	63%
Local TV news	74%	63%
Cable network news	47%	49%
Family/friends advice	44%	47%
Talk radio	36%	31%
Coworker advice	23%	30%
National newspapers	18%	18%
Consumer magazines	23%	18%
Trade magazines/newsletters	13%	12%
Celebrity endorsement	14%	10%

Table 2: Traditional Media Usage (% of consumers)[22]

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[21] Clifford, Stephanie.

[22] Loechner, Jack. "MediaPost Publications Legacy Media and New Media Meld: Mass Communications Succumb to Communications by the Masses 01/21/2009." *MediaPost - news and directories for media, marketing and online advertising professionals*. 11 May 2010. <http://www.mediapost.com/publications/?fa=Articles.showArticle&art_aid=98611>

The movement from content consumers to content publishers is reshaping the "very environment of media and information itself."[23] According to Lee Rainie, Director of the Pew Internet and American Life Project, the percentage of people who are considered to be content creators on the Internet is defined by the type of contribution in which they are engaged. The following statistics are from a study of recent trends in Internet use:

- 57% of internet users create material on a social networking site such as Facebook

- 37% of internet users share photos

- 30% of internet users contribute rankings and reviews of products or services

- 28% of internet users create tags connecting content

- 26% of internet users post comments on third-party websites or blogs

- 26% of internet users post comments on other websites[24]

To put this into perspective, the number of internet content creators has gone from less than a tenth of the Internet population in the late 1990s to well over half the entire population in the early part of 2010.[25] This influx of new media contributors opens the horizons for sources of information. Experts agree that personal blogs or other individually produced content is often perceived as having more credibility then large broadcast networks. The shift to content creators has been described as the democratization of media, in which amateurs do not need credentials to enter a landscape previously dominated by media elites.

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[23] Rainie , Lee. "Networked Creators: How users of social media have changed the ecology of information." *Pew Research Center's Internet & American Life Project* (2010): 1-19. Print.
[24] Rainie, Lee.
[25] Rainie, Lee.

The shift in preferred communication platforms can also be observed in generational trends. As noted previously, there was at least a 10% jump across all age groups of people posting a profile on a social networking site from 2008 to 2010.[26] The Millennial generation numbers approximately 75 million people born between 1977 and 1998 (ages 12-33) and is representative of the shift in choice of communication platforms. A recent survey of 5,595 employees and students ages 14 to 27 in 13 countries, including the US, found that Millennial communication is moving away from e-mail and toward instant alternatives.[27]

> While older Millennials (ages 23-27) globally still spend an average of 6.8 hours a week writing or receiving work-related e-mails, mid- Millennials already in the workforce spend just 4.2 hours a week on e-mail. Among that group, real-time alternatives are gaining ground, such as text messaging via mobile phone (three hours) or instant messaging (3.2 hours).[28]

This further illustrates the growing cultural shift away from asynchronous modes of communication, like email, to synchronous modes such as instant messaging and texting on cell phones.

The Pew Internet & American Life Project's *Generational Differences in Internet Activities* shown in **Figure 1** highlights the generational move toward always connected and near perpetual communication as well. The top section displays internet activities performed mostly by teens

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[26] "The Arbitron / Edison Internet and Multimedia Research Series." *Edison Research: Media, Market and Opinion Research - and the National Election Exit Poll*. 11 May 2010. <http://www.edisonresearch.com/internet_studies.php>
[27] "Jumping the boundaries of corporate IT: Accenture global research on Millennials' use of technology." *Accenture* (2010): 1-16. Print.
[28] "Jumping the boundaries of corporate IT: Accenture global research on Millennials' use of techbology."

and Millenials, or Generation Y. [29] Instant messages, social networking sites, blogs, and virtual

worlds are all social media tools shown to be disparately used by younger generations (ages 12-

32). The middle section shows Generation X and older dominate more static sites like those for

health and religious information. The bottom section shows the activities that are used by most

generations. According to their research, email is the top online activity used by all

generations. [30]

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[29] "Generational differences in online activities." *Pew Research Center's Internet & American Life Project*. 28 January 2009. 11 May 2010. <http://pewinternet.org/Infographics/Generational-differences-in-online-activities.aspx>
[30] "Generational differences in online activities."

	Online Teens^ (12-17)	Gen Y (18-32)	Gen X (33-44)	Younger Boomers (45-54)	Older Boomers (55-63)	Silent Generation (64-72)	G.I. Generation (73+)	All Online Adults^^
Go online	**93%**	**87%**	**82%**	**79%**	**70%**	**56%**	**31%**	**74%**
Teens and Gen Y are more likely to engage in the following activities compared with older users:								
Play games online	78	50	38	26	28	25	18	**35**
Watch videos online	57	72	57	49	30	24	14	**52**
Get info about a job	30~	64	55	43	36	11	10	**47**
Send instant messages	68	59	38	28	23	25	18	**38**
Use social networking sites	65	67	36	20	9	11	4	**35**
Download music	59	58	46	22	21	16	5	**37**
Create an SNS profile	55	60	29	16	9	5	4	**29**
Read blogs	49	43	34	27	25	23	15	**32**
Create a blog	28	20	10	6	7	6	6	**11**
Visit a virtual world	10	2	3	1	1	1	0	**2**
Activities where Gen X users or older generations dominate:								
Get health info	28	68	82	74	81	70	67	**75**
Buy something online	38	71	80	68	72	56	47	**71**
Bank online	*	57	65	53	49	45	24	**55**
Visit govt sites	*	55	64	62	63	60	31	**59**
Get religious info	26~	31	38	42	30	30	26	**35**
And for some activities, the youngest and oldest cohorts may differ, but there is less variation overall:								
Use email	73	94	93	90	90	91	79	**91**
Use search engines	*	90	93	90	89	85	70	**89**
Research products	*	84	84	82	79	73	60	**81**
Get news	63	74	76	70	69	56	37	**70**
Make travel reservations	*	65	70	69	66	69	65	**68**
Research for job	*	51	59	57	48	33	9	**51**
Rate a person or product	*	37	35	29	30	25	16	**32**
Download videos	31~	38	31	21	16	13	13	**27**
Participate in an online auction	*	26	31	27	26	16	6	**26**
Download podcasts	19	25	21	19	12	10	10	**19**

Figure 1: Generational Differences in Online Activities[31]

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[31] "Generational differences in online activities."

The culture shift is more than just a new shining object adopted by the youth. David Mathison, an expert in the field of social media, goes as far as to call the new access to these communication platforms a renaissance on the scale of the advent of the printing press or even text itself:

> …the proliferation of interactive media holds within it the potential for a fundamental shift in the relationship of human beings to the values and authorities shaping their lives. In that sense, this moment is as big as the invention of text, the printing press, or radio transmission.[32]

The change spans the fields of marketing, public relations, human resources, journalism, politics, and government. Social media tools are shaping how relationships are formed and sustained. This new virtual dynamic creates new norms for those relationships. For example, "friend" is now used as a verb, as in to "friend someone on Facebook," meaning "to ask someone to be a part of social network on Facebook."[33] These virtual friendships shape not only online identities, but also the way we understand ourselves in relation to others.[34] The center of social life has changed from the neighborhood to connections across the globe. The implications of this always on-and-mobile network are yet to be seen.

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[32] Mathison, David. *Be The Media*. New Hyde Park: natural E creative, 2009. Print.
[33] Boyd, D. (2006a). *Friends, Friendsters, and MySpace Top 8: Writing community into being on social network sites*. *First Monday, 11* (12). July 21, 2007. <http://www.firstmonday.org/issues/issue11_12/boyd/>
[34] Rosen, Christine. "Virtual Friendship and the New Narcissism." *The New Atlantis* 15.17 (2007): 15-31. Print.

Future Trends

The future trends of social media can be forecasted along the increasingly blurred boundary between the real and the virtual. According to Dan Zarrella, social and viral marketing scientist at HubSpot, "With augmented reality and mobile social media, the real world will be important again."[35] Several other social media experts have added their voice to what they see as the future trends. Many touch on the themes of location, augmented reality, privacy issues, and social gaming. These trends are based on the prevalence of the Global Positioning System (GPS) in modern smart phones, and locations-based social networking sites such as Foursquare.

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[35] "Trendsspotting." *Trendsspotting Marketing Research*. 13 May 2010. <http://www.trendsspotting.com/>

OVERVIEW OF SOCIAL MEDIA TOOLS

This section provides definitions and explanations of six social media tools determined through expert input and research to be the most popular and/or the most relevant to the civilian, U.S. government, and DoD Weblogs, social networking sites, wikis, multimedia-sharing sites, location-based social networking, and chat systems. The combination of the tools is also discussed.

Weblogs

Weblogs, more conventionally shortened to "blogs," are sites consisting of entries that appear in reverse chronological order.[36] People post entries on various topics on blogs, and the format allows content consumers to comment.[37] There is a wide range of types and styles of blogs. Blogger and Wordpress are two popular sites that allow people to create and host their own blogs for free.

Social Networking Sites

Social networking sites connect people generally through user-generated profiles, commenting, and messaging systems.[38] Some limit who can join while others are open to anyone and

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[36] Gunelius, Susan. "What Is A Blog - An Essential Introduction to the Blogosphere for Beginner Bloggers to Learn What Is a Blog." *Blogging - Blogging Tips - Blog Promotion - Make Money Blogging - Blogging Jobs*. Web. 15 July 2010. <http://weblogs.about.com/od/startingablog/p/WhatIsABlog.htm>

[37] Gunelius, Susan.

[38] Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), article 11. <http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html>

everyone. Most social networking sites allow users to search for possible contacts using personal information such as names, schools attended, jobs worked, location, interests, gender, activities, etc. Some social networking sites connect college classmates while others connect business colleagues. Others even connect music fans or those interested in sports teams or shared politics.[39] The possibilities are virtually endless.

Multimedia Sharing Sites

Multimedia sharing sites allow users to upload and post different forms of media such as photos, video and audio. These can be grouped into virtual albums and shared via e-mail link or embedding the video onto a webpage.[40] While these sites have many active users, they also began integrating into other forms of social media such as blogs and social networking sites. The advent of "real-time streaming" of video—where the user can watch videos within the web browser as opposed to downloading a video and watching it in a separate application—has drastically re-shaped the internet browsing experience.[41]

Wikis

According to information-management.com, "a wiki is a collaborative Web site oriented to providing knowledge in some domain. Anyone can enter information or change or comment on

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[39] Boyd, D. M., & Ellison, N. B. Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), article 11. http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html

[40] "About Flickr." *Welcome to Flickr - Photo Sharing*. Web. 15 July 2010. <http://www.flickr.com/about/>

[41] "Business Internet Traffic Increases to Facebook and YouTube." *Network Box: Managed Security Services*. 16 April 2010. 13 May 2010. <http://www.network-box.com/node/533>

anyone else's contributions."[42] This leads to a collaborative effort that attempts to use to the "wisdom of the crowds" approach.[43] The more active users a wiki has, the more accurate the information should be.

Location-Based Social Networking

Location-based social networking sites allow people to post their location to friends and vice versa.[44] People often post that they are at certain locations to gain a reward in the form of a discount from the establishment they post about or a certain status from the website (e.g., "Mayor" of the establishment).[45] As of May 2010 location-based social networking is still relatively new. One of the biggest networks, FourSquare, just got started in March 2009.[46]

Another location-based social networking tool becoming common is the integration of GPS information into the many other forms of social media through geotagging. With GPS technology becoming common in smart phones, users can track their exact location while mobile. This gives social networkers the ability to geotag operations of other social media

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[42] "Glossary." *Information Management*. 13 May 2010. <http://www.information-management.com/glossary/w.html>
[43] Bradley, Anthony. "A New Definition of Social Media." *Gartner Blog Network*. 7 January 2010. Web. 15 July 2010. <http://blogs.gartner.com/anthony_bradley/2010/01/07/a-new-definition-of-social-media/>
[44] Bourla, Dave. "How To Unlock Your World With Foursquare Video | Dating & Social Networks | Howcast.com." *How To Videos on Howcast | The Best How to Videos on the Web*. Web. 15 July 2010. <http://www.howcast.com/videos/386406-How-To-Unlock-Your-World-With-Foursquare>
[45] Bourla, Dave.
[46] "Happy Birthday, Foursquare." *Foursquare*. 11 Mar. 2010. Web. 15 July 2010. <http://blog.foursquare.com/post/441568658/happy-birthday-foursquare>

applications.[47] A geotag is the geographic location information displayed when a person posts an update to their social media profile.[48]

Messaging Systems

Messaging systems have been around for some time now and were one of the beginnings of social media. Over time people have created a variety of different messaging systems including instant messaging, chat rooms, and message boards. The team has defined two chat systems: instant messaging and chat rooms.

Instant Messaging

Instant messaging refers to any software that allows users at different computer stations to communicate synchronously.[49] Users usually first type in a sub-field and then once the sender has confirmed the entry, the other user (receiver) can see the text as fast as it can be carried across the network. The receiver can then respond.

Chat Rooms

Chat rooms, which have been losing popularity, are essentially instant messaging systems that can host multiple users.[50] Some exist as a single chat room for multiple users to communicate

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[47] "Twitter Support : About the Tweet With Your Location Feature." *Twitter Support*. Web. 15 July 2010.
<http://twitter.zendesk.com/forums/26810/entries/78525>.
[48] "Geotagging Defined at Obsessable." *Obsessable: Your Personal Technology Guide.* Web. 15 July 2010.
<http://www.obsessable.com/glossary/geotagging/>
[49] "#1 Chat Avenue - Chat History." *#1 Chat Avenue - Free Chat Rooms for Adult, Kids, Singles, and Teen Users*. Web. 15 July
2010. <http://www.chat-avenue.com/history.html>
[50] "#1 Chat Avenue - Chat History."

instantaneously (e.g., readers of a baseball blog chatting during a game), or some exist on hosted websites that will have a large collection of chat rooms separated by topic.[51]

Social Media Tools Combined

The evolution of individual social media tools has allowed them to grow together. The combination of several types of social media tools has allowed for sites that can include social networking in conjunction with micro-blogging, multimedia sharing, and instant messaging or blogs that allow for social networking and photo sharing.

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[51] "#1 Chat Avenue - Chat History."

INTERNAL AND EXTERNAL DEFINED

In assessing the value of social media tools to military operations, the team needed to define two broad areas of concern in which to differentiate uses of social media. The team has called these "internal" and "external" areas of use.

Internal Use

The team has defined the "internal use" of social media as using any form of social media tool defined above within a closed network. The internal use of social media tools is based on strict access controls ensuring that only authorized users have access to the information. These tools allow individuals within an organization or business to share information within. This could be an intra-agency use, such U.S. Army's CompanyCommand, or interagency use, such as U.S. Intelligence Community's (IC) A-Space, or Analytic Space.[52] The following are examples of tools created by the DoD, government, or private sector for internal use.

Blogs

Recently a new microblogging service called Defense Connect Online (DCO) "Chirp" was established as part of a series of enterprise 2.0-style initiatives across the DoD.[53] Chirp is part of the Intelink suite of tools. The site, modeled after the microblogging site Twitter, is intended to

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[52] Hoover, Nicholas J. "U.S. Spy Agencies Go Web 2.0 In Effort To Better Share Information." *Informationweek.com*. 23 August 2007. 5 May 2010. <http://www.informationweek.com/news/internet/showArticle.jhtml?articleID=201801990>

[53] Hinchcliffe, Don. "Making government more open and social." *Technology News, Analysis, Comments and Product Reviews for IT Professionals | ZDNet*. 28 February 2010. 24 May 2010. <http://www.zdnet.com/blog/hinchcliffe/making-government-more-open-and-social/1252>

provide situational awareness and information on breaking news.[54] Chirp promotes collaboration

through informal messaging and allows users to post messages of up to 140 characters.[55]

In 2007, the Transportation Security Administration (TSA), part of the DHS launched

IdeaFactory, an internal tool designed to tap into collective wisdom.[56] IdeaFactory, which acts as

an electronic suggestion box, is participatory, collaborative, and transparent.[57] This tool allows

TSA employees to develop, promote, and improve innovative ideas for programs, processes, and

technologies and share them directly, without filter, to the entire TSA community.[58] Ideas to

improve TSA are posted, and employees rate and comment on those that interest them.[59] They

participate in two-way communication with agency leadership, TSA program offices, and each

other. The IdeaFactory Team reads every idea that is posted and evaluates those that are popular

or that fit especially well with specific strategic agency goals. Senior leadership and program

managers communicate by correcting misinformation and responding to ideas with specific,

detailed explanations.[60] Within about a year, approximately 4,500 ideas were submitted, and

about 20 were implemented.[61]

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[54] Hinchcliffe, Don.
[55] Hinchcliffe, Don.
[56] Drapeau, Mark, and Linton Wells II.
[57] United States Department of Homeland Security. "IdeaFactory." *The White House*. 23 May 2010.
<http://www.whitehouse.gov/open/innovations/IdeaFactory>
[58] United States Department of Homeland Security. "IdeaFactory."
[59] Drapeau, Mark, and Linton Wells II.
[60] United States Department of Homeland Security. "IdeaFactory."
[61] Hanna, Andy. "Transportation Security Administration's IdeaFactory." *The Collaboration Project*. 13 June 2008. 23 May 2010.
<http://www.collaborationproject.org/display/case/Transportation+Security+Administration's+IdeaFactory/>

Social Networking Sites

In 2009, The National Aeronautics and Space Administration (NASA) launched Spacebook, an internal expert networking site for all NASA employees.[62] Spacebook was driven by a need to improve teamwork, communication, and access to information across the organization's diverse projects and centers.[63] As on Facebook, users on Spacebook maintain their own profiles, which list their expertise and personal interests.[64] They can also publish their status, share files, and friend or follow other Spacebook users' activities.[65] Through the site, new and established employees are encouraged to connect and engage with the large community of scientists, engineers, project managers, and support personnel.[66] NASA believes that the more diverse the group, the more likely connections and conversations will lead to new, innovative ideas.[67] In the future, Spacebook may add blogs and a "My Workspace" area where users can add widgets and mashups (web applications that combine data from more than one source into a single integrated tool).[68][69] NASA is also considering integrating their Spacebook portal with the SharePoint social networking sites currently in use at NASA's Ames Research Center and Kennedy Space Center.[70]

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[62] Hille, Karl. "NASA's Goddard Space Flight Center Launches Spacebook." *NASA - Home*. 8 June 2009. 21 May 2010. <http://www.nasa.gov/centers/goddard/news/topstory/2009/spacebook.html>

[63] Hille, Karl.

[64] Perez, Sarah. "For NASA Employees, It's 'Spacebook' Not Facebook." *ReadWriteWeb - Web Apps, Web Technology Trends, Social Networking and Social Media*. 19 June 2009. 21 May 2010. <http://www.readwriteweb.com/enterprise/2009/06/for-nasa-employees-its-spacebook-not-facebook.php>

[65] Perez, Sarah.

[66] Hille, Karl.

[67] Steitz, David E., and Ed Campion. "NASA Making Government More Accessible With Cutting-Edge Use Of New Media." *NASA - Home*. 9 December 2009. 21 May 2010. <http://www.nasa.gov/home/hqnews/2009/dec/HQ_09-283_OpenGov.html>

[68] Perez, Sarah.

[69] United States Army. "Social Media Best Practices (Tactics, Techniques, Procedures)." *Online and Social Media Division* (2009): 1-21. Print.

[70] Perez, Sarah.

GovLoop has been described as "Facebook for government."[71] As stated in their own website, GovLoop seeks to build a network of government employees at the national, state and local level. It is a website designed to facilitate collaboration among both government employees and civilian government contractors.[72]

In the private sector, the idea for Deloitte's "D Street" began when the firm's talent organization wanted to make a large company feel smaller.[73] In addition, D Street was developed to create an environment that would appeal to Deloitte's mostly younger workforce. By enabling connections among employees, the company could more easily offer flexible work arrangements, establish virtual teams, bring new employees up to speed, improve collaboration, and increase retention of personnel who had not felt a strong sense of belonging.

After partnering with internal information technology (IT), communications, and knowledge management groups, Deloitte launched the alpha version of D Street in June 2007. The initial rollout was to 1,500 employees. Built on a Microsoft SharePoint 2007 platform, D Street's capabilities are similar to Facebook's, except its profiles are pre-populated with basic information including name, job title, and contact information. Employees can personalize their profiles by adding photographs, resumes, work and community affiliations, and former employers. With time, the development team tweaked the system with enhancements and new capabilities. In 2009, all 46,000 members of the organization were in the system.[74]

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[71] "Media Kit." *GovLoop - Social Network for Government*. Web. 26 July 2010. <http://www.govloop.com/page/media-kit>
[72] Hoover, Nicholas J. "U.S. Spy Agencies Go Web 2.0 In Effort To Better Share Information."
[73] Brandel, Mary. "Social networking behind the firewall: Microsoft calls it TownSquare. Deloitte hosts D Street. IBM has its Beehive, and Best Buy its BlueShirt Nation." *Computerworld*. 12 August 2008. 21 May 2010.
<http://www.computerworld.com.au/article/256608/social_networking_behind_firewall/?pp=4&fp=39&rid=1&fpid=25646>
[74] Brandel, Mary.

Multimedia Sharing

The DCO Portal is an entry point for two services that allow members to communicate. It "enables users to communicate and interact with groups large and small in real-time, using high-impact presentations and essential collaboration tools."[75] It allows the users to share video and audio to collaboration purposes.

Wikis

Intelink is a group of secure intranets used by the U.S. Intelligence Community (IC).[76] Intelink refers to the web environment on protected top secret, secret, and unclassified networks.[77] The first Intelink network was established in 1994 to take advantage of Internet capabilities and services to promote intelligence dissemination and business workflow.[78] Since then Intelink has become an essential tool for the U.S. IC and its partners to share information, collaborate across agencies, and conduct business.[79]

One of the key features of Intelink is Intellipedia, an online system for collaborative data-sharing.[80] Intellipedia uses MediaWiki (the same software used by Wikipedia) and includes information on the regions, people, and issues of interest to the communities using its host

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[75] "DCO (Defense Connect Online) Quick Reference Guide." *Defense Connect Online* (2007): 1-6. Print.
[76] Pike, John. "Intelink." *Federation of American Scientists*. 31 March 2003. 20 May 2010.
<http://www.fas.org/irp/program/disseminate/intelink.htm>
[77] CIO G6. "Help." *U.S. Army Architecture Community.* 2010. 20 May 2010. <http://architecture.army.mil/enterprise/enterprise-foundation/273.html>
[78] Pike, John.
[79] CIO G6.
[80] Yasin, Rutrell. "What can Feds learn from Intelink?." *Washington Technology*. 28 May 2010. 20 June 2010.
<http://washingtontechnology.com/blogs/circuit/2010/05/what-can-feds-learn-from-intelink.aspx>

networks.[81] The site was established as a pilot project in late 2005 and formally announced in

April 2006 and consists of three wikis running on Joint Worldwide Intelligence Communications

System (JWICS), Secret Internet Protocol Router Network (SIPRNET), and Intelink-U.[82]

Individuals with appropriate clearances from the 16 agencies of the IC and other national-

security related organizations, including combatant commands and other federal departments.[83]

The site, though available only to users with proper government clearance, has grown markedly

since its formal launch in 2006 and now averages more than 15,000 edits per day.[84] It is currently

home to 900,000 pages and 100,000 user accounts.[85]

The Strategic Knowledge Integration-Web (SKI-web) is the Strategic Command's 24-hour

operations and intelligence meeting place.[86] The SKI-web project began in April 2004 as a

PowerPoint tool that demonstrated a vision for information management within

USSTRATCOMs Global Operations Center (GOC).[87] Using a Wikipedia-style approach, the

program eliminates the chain of information and lets warfighters collaborate, regardless of their

rank or position.[88] SKI-web was developed to provide a net-centric, asynchronous, collaborative

event management capability in order to improve situational awareness for all authorized users

of the SIPRNET and JWICS.[89] SKI-web replaced the C2Gateway and was introduced to change

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[81] "Intellipedia." *Citizendium*. 16 December 2009. 20 June 2010. <http://en.citizendium.org/wiki/Intellipedia>
[82] "Intellipedia."
[83] "Intellipedia."
[84] Harwood, Matthew. "Intelligence Community's Wikipedia Begins to Thrive." *Security Management*. 27 August. 2009. 20 June 2010. <http://www.securitymanagement.com/news/intelligence-communitys-wikipedia-begins-thrive-006071>
[85] Harwood, Matthew.
[86] Rogin, Josh. "Stratcom takes a page from Wikipedia." *Federal Computer Week*. 19 October 2006. 24 May 2010. <http://fcw.com/articles/2006/10/19/stratcom-takes-a-page-from-wikipedia.asp>
[87] Snyder, Stephanie L. "SkiWeb." *Federal Buisness Opportunities*. 18 March 2010. 21 May 2010. <https://www.fbo.gov/index?s=opportunity&mode=form&id=d3ddd14b0e9b539f11cea3638562d885&tab=core&_cview=0>
[88] Rogin, Josh.
[89] Snyder, Stephanie L.

the paradigm of information and knowledge flow within the command to support net-centricity and knowledge management.

SKI-web events are real-world, exercise-related occurrences of interest to the SKI-web community. These events can range from staffing activities to military engagements. The SKI-web vision is to organize event-based information into a globally accessible, operationally relevant, near real-time database enabling users to quickly and collaboratively share data, plan strategies, coordinate courses of action (COA), assist in the decision-making process, and make necessary adjustments as situations develop.[90] This program breaks down the barrier of information-sharing in classified settings.[91]

Location-based Social Networks

While it is acknowledged that the government and military have many uses of GPS technology, the team has not found any instances in which there are exclusively social media-type location-based social networks in use by the government. The finding that the few non-government location-based social networks were geared mostly towards promotional uses for entertainment venues reaffirms this.

Messaging Systems

In addition to the collaborative forms of media sharing as described above, DCO also has a chat system called Jabber XCP. According to a DCO explanation guide, "Jabber covers all the basics

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[90] Snyder, Stephanie L.

[91] Rogin, Josh.

of IM and adds many features, including multi-user text conferencing, to further boost

productivity and enrich the user experience."[92] DCO Chat is another forum that allows users to

instantly communicate via chat rooms and instant messenger.

Combined

A-Space, mentioned above, is among the new forms of social media that combines several

different services. "A-Space [is] a portal that will eventually include everything from wikis,

blogs, social networking, and personalization to Really Simple Syndication (RSS) feeds,

collaborative Web-based word processing, mash-ups, and content tagging all built atop an

underlying services-oriented architecture."[93]

CompanyCommand started as a small, grassroots effort in 1995 by two young U.S. Army

officers and evolved into a professional forum that allows soldiers who have been given

command of a company of about 150 soldiers to collaborate online.[94] The idea behind

CompanyCommand was to develop a system to pass knowledge directly and more efficiently to

senior leaders without having to go up through the chain-of-command.[95] Company commanders

are a rich source of knowledge about how to be effective leaders in the rapidly changing battle

environment because of their firsthand knowledge of what the role demands.[96] Dr. Nancy M.

Dixon, expert in organizational knowledge transfer, states:

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[92] "DCO (Defense Connect Online) Quick Reference Guide."
[93] Hoover, Nicholas J. "U.S. Spy Agencies Go Web 2.0 In Effort To Better Share Information."
[94] Dixon, Dr. Nancy M. "Company Command: A Professional Community That Works." *ASK Magazine* May 2007: 1-5. *National Aeronautics and Space Administration*. Web. 21 May 2010.
[95] Drapeau, Mark, and Linton Wells II.
[96] Dixon, Dr. Nancy M.

Company commanders have created a community in which they challenge each other's thinking by raising difficult issues in the online forum; they meet together to read and discuss books through the Pro-Reading program; they provide emotional support in informal face-to-face gatherings on base; they celebrate each other's lives and successes with pictures, honors, and recognition on the CompanyCommand Web site; they meet together at a yearly rendezvous; and they provide practical firsthand knowledge about the task they are all engaged in through conversations.[97]

CompanyCommand has about 30 dedicated volunteers responsible for a specialized section of the community such as maintenance, war fighting, or military police. Each core team member is a company commander, who is a specialist from the field he or she leads.[98]

In 2006, two corporate marketers at Best Buy created BlueShirt Nation with the vision of creating a feature-rich environment for the exchange of cross-functional ideas, the sharing of best practices, and the creation of new approaches or services.[99] BlueShirt Nation is a corporate social network site that aims to flatten the organization through increased communication between employees of all levels.[100] The network provides a platform in which employees can create their own profiles and host forums on topics of their choosing.[101] Today there are over 25,000 regular users of the network, from top-level executives to store clerks.[102] Employees have the chance to share their thoughts or comment on someone else's idea; by doing so, they can even influence

[97] Dixon, Dr. Nancy M.
[98] Dixon, Dr. Nancy M.
[99] Edgett, Jim. "Blue Shirt Nation Capitalizes with Drupal." *Achieve Internet*. 31 July 2007. 24 May 2010.
<http://www.achieveinternet.com/blogs/web-20/blue-shirt-nation-capitalizes-drupal>
[100] McHardy, Thomas. "Best Buy's Collaborative 'Blue Shirt Nation'." *Thomas McHardy's Blog*. 7 April 2009. 24 May 2010.
<http://mchardtc.wordpress.com/2009/04/07/best-buys-collaborative-blue-shirt-nation/>
[101] Brandel, Mary.
[102] McHardy, Thomas.

company policies.[103] To help close the gap between store workers and corporate employees, the site now includes an application called Loop Marketplace where people can post new ideas with the hope that a Best Buy executive will notice and fund it.[104] BlueShirt Nation allows management to gain a better understanding of their employees' perspectives on workplace practices.

IDEO created The Tube, a suite of internal online tools that enables hundreds of employees located around the world to collaborate, learn, and inspire each other as an integral part of their work process.[105] The Tube combines social media tools such as blogs, wikis, and real-time screen-sharing with business systems like human resource databases, asset management systems, and e-mail.[106] The system has created ways for individuals to reveal passions and expertise, for team members to learn from one another, for offices to feel better connected, and for the company to build on shared themes and directions.[107] The tool allows employees to create people pages and project pages.[108] People pages include blogs and an area called "My Work" where individuals can create a timeline-based progression of the projects they have worked on. Project pages contain all project-related artifacts such as pictures and sketches, along with thumbnails of the main participants and contributors.[109] More than 1,000 project pages were created in the first six months of the tool's launch and over 10,000 pages in the first 14 months of the wiki's

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[103] Brandel, Mary.
[104] Brandel, Mary.
[105] Solomon, Doug. "The Tube: IDEO Builds a Collaboration System That Inspires through Passion." *Management Innovation eXchange*. 14 April 2010. 24 May 2010. <http://www.managementexchange.org/content/tube-ideo-builds-collaboration-system-inspires-through-passion>
[106] Solomon, Doug.
[107] Solomon, Doug.
[108] Spinnaker Edge Consulting. "Knowledge Sharing at IDEO." *Spinnaker Edge Consulting*. 24 May 2010. <http://www.spinnakeredge.com/IDEO_Knowledge+Sharing>
[109] Spinnaker Edge Consulting.

availability.[110] Today, more than 80% of their employees (about 500 employees at eight offices across the globe) have people pages.[111]

External Use

The team has defined "External Use" of social media as any tool that is primarily used for communicating with civilians. This includes government-based tools such as the U.S. Department of State (DoS) blog DipNote, which is used to convey stories that may not be told by the mainstream media or privately owned and operated sites such as Facebook or Craigslist.

The following are examples of External Use tools, how they are used, and some common themes.

Blogs

The Huffington Post is the most popular blog on the Internet.[112] It was founded by political commentator and author Arianna Huffington. [113] It provides an outlet for authors from all over— including professors, political commentators, authors, actors, politicians, and more—to write to a large audience and elicit feedback. Topics range from politics to pop culture, from sports to world news, from religion to comedy. The Huffington post integrates Twitter and Facebook portals along with RSS feeds like del.ici.ous to allow members to share their stories. It also incorporates many forms of multimedia sharing sites to post video and audio clips within its

[110] Solomon, Doug.
[111] Spinnaker Edge Consulting.
[112] "Top 100 Blogs - 1 to 25." *Technorati*. Technorati, Inc. 12 May 2010. <http://technorati.com/blogs/top100/>.
[113] "Huffington Post." *HuffPost Technology*. 12 May 2010. <http://www.huffingtonpost.com/p/huffington-post.html>.

stories with other people.

As mentioned previously, the DoS has an official blog called DipNote which offers public access to a broad range of foreign policy information.[114] DipNote represents an alternative to mainstream media and allows the DoS to tell its story. By posting stories of their events, it allows the DoS to control the message. While a news broadcast might provide a superficial story on relatively few events, DipNote allows the DoS to go as in-depth as it would like and present the angle it wants. It also allows the DoS to post videos and pictures on the site.

Twitter is a micro-blog that limits entries to 140 characters or less. Its popularity and name-recognition has grown substantially, but its actual use is still quite low.[115] Due to its relative "youth," Twitter's ultimate usage and benefits are still uncertain.

Social Networking Sites

Facebook is the world's most popular social networking site, and the second most popular site on the entire Web.[116] It was originally started as a way to allow students at Harvard University to connect while online.[117] It quickly spread too many different colleges and universities and eventually opened up to everyone on the Internet. Currently, Facebook has roughly 125 million

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[114] United States Department of State. "About the State Department Blog." *Dipnote: U.S. Department of State Official Blog*. 12 May 2010. <http://blogs.state.gov/index.php/site/about>

[115] Webster, Tom. "Twitter Usage In America: 2010." *Edison Research: Media, Market and Opinion Research - and the National Election Exit Poll*. 29 Apr. 2010. 18 May 2010. <http://www.edisonresearch.com/home/archives/2010/04/twitter_usage_in_america_2010_1.php>.

[116] "The top 500 sites on the web." *Alexa.com*. Alexa Internet, Inc. 12 May 2010. <http://www.alexa.com/topsites>

[117] Yadav, Sid. "Facebook - The Complete Biography." *Mashable.com*. 2007. 18 May 2010. <http://mashable.com/2006/08/25/facebook-profile/>

visitors monthly with nearly seven billion total visits per month.[118]

LinkedIn is the world's most popular social networking site exclusively used for businesses.[119] "LinkedIn exists to help [the user] make better use of [his/her] professional network and help the people [he/she] trust[s] in return."[120] To become a connection with a person, there are stricter rules than typically found on social networking sites. A person must know their proposed contact's name or e-mail address to even request being a contact.

Multimedia Sharing

YouTube is the world's most popular multimedia sharing site.[121] It allows users to upload videos onto the Internet so they can be shared with anyone. YouTube has over two billion views per day and over 24 hours of videos uploaded per minute.[122] That comes out to four years' worth of original programming every month. Furthermore, there would need to be 1,440 television broadcasting stations producing original material 24 hours per day to keep up.

Wikis

Wikipedia is the world's largest wiki-based website.[123] It is a general-knowledge wiki in an encyclopedia format. It is open-source, meaning that anyone can edit it. "Wikipedia was launched in 2001 by Jimmy Wales and Larry Sanger and is currently the largest and most

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[118] "Facebook.com." *Quantcast.com*. 18 May 2010. <http://www.quantcast.com/facebook.com>

[119] "Quantcast US Site Rankings for Sites 1 to 100." *Quantcast.com*. 18 May 2010. <http://www.quantcast.com/top-sites-1?r=53#53>

[120] "About Us." *LinkedIn.com*. 18 May 2010. <http://press.linkedin.com/>

[121] "Quantcast US Site Rankings for Sites 1 to 100."

[122] Kincaid, Jason. "Five Years In, YouTube is Now Streaming Two Billion Views Per Day." *Techcrunch.com*. 16 May 2010. 18 May 2010. <http://techcrunch.com/2010/05/16/five-years-in-youtube-is-now-streaming-two-billion-videos-per-day/>

[123] "Quantcast US Site Rankings For sites 1 To 100."

popular general reference work on the Internet."[124]

WikiHow is another popular wiki. The website defines itself as "the world's collaborative how-to manual."[125] On WikiHow, as with any wiki, users are encouraged to review and edit entries. WikiHow topics range from Arts and Entertainment ("How to be a Dance Music DJ Using CDs" [126]) to Philosophy and Religion ("How to be a Taoist" [127]).

Location-based Social Network

FourSquare is one of the most popular location-based social networking sites to date, expected to hit over 1.8 million users by the end of 2010.[128] While it is growing, one can see that is far below the traffic of the other forms of social media (e.g., Facebook with over 400 million users). FourSquare allows users on mobile GPS-equipped devices (smart phones, media players, laptops, etc.) to report their locations to friends at any given time. Often businesses provide discounts if someone claims they are at the business; the business hopes this leads to increased customers.

The team found little use for the military sites that are primarily location-based social networks. The real use, as was demonstrated in the January 2010 Haitian earthquake and explained below, comes with the integration of GPS information into other social media tools.

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[124] "Wikipedia." *Wikipedia.org*. 18 May 2010. <http://en.wikipedia.org/wiki/Wikipedia>
[125] "WikiHow." *Wikihow.com*. 18 May 2010. <http://www.wikihow.com/Main-Page>
[126] "Be a Dance Music DJ Using CDs." *Wikihow.com*. 16 May 2010. 18 May 2010. <http://www.wikihow.com/Be-a-Dance-Music-DJ-Using-CDs>
[127] "How to Become a Taoist." *Wikihow.com*. 18 May 2010. <http://www.wikihow.com/Become-a-Taoist>

[128] "We're just getting started." *Foursquare*. 29 June 2010. Web. 15 July 2010. <http://blog.foursquare.com/post/751153312/were-just-getting-started>

Messaging Systems

America Online Instant Messenger (AIM) was launched in 1997 and is widely credited with revolutionizing the instant messaging world.[129] As of 2008, AIM was the most popular instant messaging client with 53 million users. It was also the first to allow users to share videos, pictures and other media files.[130]

Google has emerged as a leader among messaging clients. Originally a search engine, Google has attempted to keep up with, and even lead, the new online world by creating a vast array of services. They introduced Gmail, a free e-mail service that includes Google Chat, a way to instant message within Gmail; Google Talk, a stand-alone instant message system; and Google Wave, which expands instant messaging with collaboration and sharing of documents and media.

Conclusion

This is not an exhaustive list of all the social media tools that exist, nor is it an exhaustive list of the sites or software that would be used in these groups. The team found the tools mentioned to be the most popular and most useful. The sites and software are typically the most popular sites in their categories, although that is not always the case. One of the most monumental shifts that began in the past couple of years is the integration of all of these tools. Whether it is a blog platform that allows readers to "follow" them on their social networking site or a social

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[129] De Hoyos, Brandon. "A 'Quantum' Leap for AIM." *About.com*. 18 May 2010.
<http://im.about.com/od/imbasics/a/imhistory_3.htm>
[130] De Hoyos, Brandon. "Single-Protocol IM Clients." *About.com*. 18 May 2010.
<http://im.about.com/od/joiningtheimworld/ss/compareim_2.htm>

networking site that allows the users to post videos or status updates that are geotagged, the tools

are converging. Facebook, as mentioned above, started and is classified as a social networking

site; however, it now allows instant messaging, "photo albums," videos, linking to outside sites,

"Notes" (similar to blogs), and geotagging. It should come as no surprise that Facebook's

approach to incorporating virtually all forms of social media into one site has led it to become

the world's most popular social networking site.

INTERNAL TOOLS

The rise of social media is changing how organizations operate and communicate with their employees and other organizations. Organizations of all kinds are looking for ways to take advantage of the benefits provided to emerging Web 2.0 technologies that make greater immediacy, interactivity, and transparency possible. Even in very secure and closed government environments, such as the U.S. Intelligence Community (IC), there have been proactive moves toward making use of internal social media tools.

Benefits

Productivity

Currently, both the private and public sectors are taking advantage of internal channels of communication and building their own online communities. Internal tools can increase productivity because they help users locate and view information faster and make use of applications relevant to their roles and responsibilities. With the help of web technologies, users can access data held in any available database anytime and from anywhere within the company network. This increases the ability of employees to perform their jobs faster, more accurately, and with confidence that the information is correct.

The U.S. IC, an 80,000-person organization, built Intellipedia to improve its employees' ability to create and share sensitive information more effectively.[131] With strong support from senior management and bottom-up, grassroots adoption, the internal wiki has thrived as a highly secure, trusted social network where all contributions are transparent and accuracy is community-enforced. As a result, there are more than 5,000 contributions daily, and there has been a dramatic increase in employee productivity in finding subject matter experts faster.[132]

Collaboration

Internal social media tools also enhance organizational collaboration and allow employees to take advantage of cumulative knowledge and experience, irrespective of time or geographic location. This enhanced ability to share knowledge and information improves agency operations, as problems are solved from multiple perspectives instead of one isolated, limited viewpoint. Nissan, a global car manufacturer, launched an internal social networking site in 2007 to help foster employee collaboration.[133] The site, N-Square, connects over 50,000 of the company's 180,000 employees.[134] Users are able to create online profiles, blogs, communities, and discussion groups and share data files.[135] N-Square provides employees with a way to avoid bureaucratic channels and create new partnerships.[136] For Nissan, developing better, high-tech cars in less time and with fewer resources than competitors is vital in order to succeed in the automotive industry. To achieve this goal, employees must work with others who might not be

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[131] Oracle. "Making Web 2.0 Work for Your Enterprise: Internal Deployments." *An Oracle White Paper* (2009): 1-9. Print.
[132] Oracle.
[133] Oracle.
[134] Hall, Kenji. "Why Is Nissan Mimicking MySpace?." *BusinessWeek - Business News, Stock Market & Financial Advice*. 30 August 2007. 24 May 2010.
<http://www.businessweek.com/globalbiz/content/oct2007/gb20071030_537362.htm?campaign_id=rss_tech>
[135] Oracle.
[136] Hall, Kenji.

sitting in the next cubicle. Engineers developing brakes for a small hatchback might want to consult more knowledgeable colleagues designing sports car brakes halfway round the planet and N-Square encourages such collaboration.[137]

Knowledge Sharing

Furthermore, internal social media tools allow for quick dissemination of information and the ability of organizations to distribute information to employees on an as-needed basis while employees may also link to relevant information at their convenience. In addition, such tools improve communication, both vertically and horizontally within an organization. Launched in October of 2008, DoDTechipedia was developed to increase communication and collaboration among the department's scientists, engineers, program managers, acquisition professionals, and operational war fighters.[138] Using Web 2.0 technologies, such as wiki and blogging tools, DoDTechipedia enables users to see and discuss the innovative technologies being developed throughout the DoD as well as emerging technologies from the academic and private sectors.[139] In doing so, this tool allows DoD personnel to collaborate on technology solutions, reduce costs, add capability more rapidly, and avoid duplication of research and effort.[140]

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[137] Hall, Kenji.
[138] Davie, Mary. "Project of the Week - DoDTechipedia and DefenseSolutions.gov." *GovLoop - Social Network for Government*. 8 April 2009. 24 May 2010. <http://www.govloop.com/profiles/blogs/project-of-the-week>
[139] Schwalb, Sandy. "DoDTechipedia launched." *Find Articles at BNET | News Articles, Magazine Back Issues & Reference Articles on All Topics*. 1 February 2009. 24 May 2010. <http://findarticles.com/p/articles/mi_m0QMG/is_1_38/ai_n32094686/>
[140] Davie, Mary.

Knowledge Management

Internal social media tools improve knowledge management by providing platforms that allow organizations to collect knowledge in a single database and provide access to employees through servers or via the Web. Army Knowledge Online (AKO) was launched in 2001 to provide the Army enterprise with email, directory services, blogs, file storage, instant messenger, and chat.[141] The purpose of AKO is to manage and register users in order to facilitate electronic communications and collaboration among DoD personnel and other authorized guest users. The system serves as an Army-controlled repository for information necessary for the performance of duties and other DoD-related functions.[142] Access is determined based on individual needs for specific types of information.[143] Another important function of AKO is the online storage of soldiers' records. Before AKO, all military records were stored in a paper file systems. Now, soldiers can look up personal records and update their information quickly and easily.[144]

Cost-Saving

Internal social media tools serve as cost-saving measures. Organizations can save money by using social media for collaborative efforts that would otherwise require people's physical presence at a given location. Recognizing their own unique needs as a global, distributed workforce, Sabre Holdings, a leading company in the travel industry, embarked to build their

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[141] CIO G6. "Privacy Impact Assessment." *Army Knowledge Online*: 1-4. Print.
[142] CIO G6.
[143] Grant, Diane A. "AKO." *The Fort McCoy Installation Web Site.* 14 September 2001. 24 May 2010.
<http://www.mccoy.army.mil/vtriad_online/09142001/AKO.htm>
[144] Grant, Diane A.

own internal social networking site, Sabre Town.[145] Sabre Town represents the company's need

to build more meaningful connections with their geographically diverse employee population.[146]

In a three-year period, Sabre went from a company where 85% of its employees worked in the

U.S. to one in which 55% of employees worked in 59 countries outside of the U.S.[147] Sabre

Town has delivered tangible benefits to the organization, including increased employee

engagement, faster communication, a more inclusive culture, and hard dollar savings. In 2008,

Sabre Town saved the company more than half a million dollars through reduced travel, time

savings, and lower professional fees.[148]

Risks

Loss of Sensitive and Proprietary Information

Though internal social media tools offer an array of benefits and opportunities, the use of such

tools also involves security risks. Core Security experts stated, "As for internal social networks,

telling users that it is completely safe is risky because a hacker may still break in."[149] If a hacker

is successful in breaking into an internal network, a great deal of sensitive and proprietary

information can be leaked. For instance, most military logistic information flows across the

unclassified Defense Department system, the NIPRNET.[150] The Pentagon maintains a separate

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[145] Ward, Toby. "Employee social networking - Sabre Town case study." *Prescient Digital Media*. 24 May 2010.
<http://www.prescientdigital.com/articles/intranet-articles/employee-social-networking-case-study/>
[146] Ward, Toby.
[147] Manchester, Alex. "Intranet Innovations 2009: insights into this year's winners." *Step Two Designs*. 24 November 2009. 24
May 2010. <http://www.steptwo.com.au/papers/kmc_iia09/index.html>
[148] Manchester, Alex.
[149] Kellerman, Tom, Pedro Varangot, and Ariel Waissbein. Personal interview. 2 Mar. 2010.
[150] Perera, David. "The Great Wall." *Government Executive*. 1 March 2006. 24 May 2010.
<http://www.govexec.com/features/0306-01/0306-01na1.htm>

network for secret information but utilizes the NIPRNET daily.[151] According to John Gilligan, a former Air Force Chief Information Officer, "The network isn't open to just anybody—it connects to the internet via protected gateways—but it is vulnerable. About 700,000 Air Force desktop computers hook up to the NIPRNET, and finding a vulnerable machine and exploiting that hole is certainly within the realm of a nation-state."[152] In general, foreign disruption of internal military information technology networks could have a potentially major, even catastrophic, impact. Gilligan also stated that "the job of shoring up computer security never ends." Security requires steady monitoring and attention as hackers exploit new holes when old ones are sealed.[153]

Social Media Graveyards

Finally, just as the most successful sites on the Internet generate tremendous amounts of repeat traffic, user adoption is the key to a successful internal tool, with usability and support leading the charge to get more employees involved in breathing life into the tool.[154] Site traffic equals user adoption, and without fresh content, there is no reason for users to keep going back to the tool. Content that people care about will drive users to the site again and again, and by planning carefully where to place elements and features, employees will be encouraged to delve deeper into the site and discover how powerful internal tools can be.[155] However, after meeting with government and private sector officials in Washington D.C., many expressed concerns about too many internal tools being developed within the DoD. According to social media consultant Steve

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[151] Perera, David.
[152] Perera, David.
[153] Perera, David.
[154] Brown, Andrew. "Why Intranets Fail (and Why They Don't Have To)." *Ektron White Paper* (2008): 1-7. Print.
[155] Brown, Andrew.

Radick, "If there are too many tools to control, 'social media graveyards' will eventually emerge."[156] Social media graveyards consist of social media tools few people use. Therefore, in order to prevent social media graveyards and inefficient spending, internal tools must be properly implemented and adopted.

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[156] Radick, Steve.. Personal interview. 25 Mar. 2010.

EXTERNAL TOOLS

The rise of social media is bringing about new methods for government and military to utilize new tools for many different benefits. Such benefits range from military operations other than war to increasing troop morale and supporting communication between family and friends. However, the use of these tools for military operations or otherwise can and will introduce a multitude of risks associated with social media such as social engineering attacks and a loss in productivity. These benefits and risks will be discussed in the following sections.

Benefits

"Globally, social [media] is being used effectively by businesses, individuals, activists, criminals, and terrorists."[157] One clear example of the power of external social media is evidenced by a single user on Facebook, a popular social networking site. Oscar Morales of Columbia started a Facebook group against the revolutionary guerrilla group Fuerzas Armadas Revolucionaries de Columbia-Ejercito del Pueblo (FARC). It began as a group of young people venting their rage and eventually turned into an international event called "One Million Voices Against FARC" with the goal of destroying the FARC. One month to the day after the initial post, more than one million people turned out in over 40 countries in protest of FARC.[158] The use of Facebook allowed a large number of people to mobilize in a very short period of time.

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[157] Drapeau, Mark, and Linton Wells II.
[158] Drapeau, Mark, and Linton Wells II.

As discussed in *Policy*, the release of the DTM 09-026 entitled "Responsible and Effective Use of Internet-based Capabilities" has made social media sites available on the NIPRNET. This early incorporation of social media into the military's daily practices allows the DoD to gain a better understanding of these tools before they are deemed necessary for military operations. Furthermore, it will decrease the probability of being shocked or outmaneuvered one day when these tools are used by others to spread misinformation about U.S. military operations or organize terrorist groups.[159] However, simply understanding the use of social media by others is not enough. The DoD must also leverage its benefits to communicate its message to the American and international public. United States Southern Command's (USSOUTHCOM) strategic communications director Sarah Nagelmann said:

> If we choose not to engage in this platform, we will be represented by others, and we lose the opportunity to represent ourselves. If we can ensure everyone affiliated with an organization understands what we do, why we do it, and why it matters, and give them the ability – empower them – to communicate that, then we have created a really strong capability, and one that will touch a lot more corners than relying on one voice alone. It can become a really powerful mechanism.[160]

Not only can social media be used by the DoD to get their message to a wider audience, but it is also being described as "knowledge management."[161] Its emphasis on sharing information allows the military "to link important but disparate data, personnel and problem-solving skills" and is

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[159] Drapeau, Mark, and Linton Wells II.
[160] Miles, Donna. "Southcom Embraces Two-Way Impact of Social Media." *United States Southern Command News.* American Forces Press Service, 5 August 2009. 5 April 2010. <http://www.southcom.mil/AppsSC/news.php ?storyId=1911>
[161] Corrin, Amber. "Social Media Is Now Mission Media." *Federal Computer Week*. 1105 Media, Inc., 6 May 2010. 13 May 2010. <http://fcw.com/articles/2010/05/05/knowledge-managament-and-social-media-in-DoD.aspx>

helping change how the military carries out its missions, particularly when it comes to military operations other than war (MOOTW).

MOOTW focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities in response to domestic crises."[162] All military operations are driven by political considerations; however, MOOTW are often more sensitive to political considerations because the ultimate goal is to prevent, preempt, or limit potential hostilities. It is important to recognize that the DoD is often not the only participant when conducting MOOTW and can even be in a supporting role particularly when it comes to humanitarian assistance. There may be multiple purposes for conducting MOOTW, and the importance of those purposes often changes or is unclear. However, "[a]s in war, the goal of MOOTW is to achieve national objectives as quickly as possible and conclude military operations on terms favorable to the United States and its allies."[163]

 MOOTW and other examples will be discussed in this section as the team found current benefits of social media use by DoD, government, and NGOs and considered potential uses by the DoD.

Legitimacy

There are six basic principles of MOOTW: objective; unity of effort; security; restraint; perseverance; and legitimacy.[164] Social media may enhance efforts related to these principles, legitimacy in particular. "In MOOTW, legitimacy is a condition based on the perception by a

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[162] J-7 Operational Plans and Interoperability Directorate. "Joint Doctrine Joint Force Employment Briefing Modules: Military Operations Other Than War." *Defense Technical Information Center*: 1-93. Print.
[163] J-7 Operational Plans and Interoperability Directorate.
[164] J-7 Operational Plans and Interoperability Directorate.

specific audience of the legality, morality, or rightness of a set of actions." Legitimacy is frequently a decisive factor in MOOTW, so if an operation is perceived as legitimate, the public will most likely support the operation. For example, in 1991, Operation PROVIDE COMFORT offered humanitarian assistance to the Kurds who were being brutalized and oppressed by the Iraqi government. The operation provided food and water, established relief centers, and improved sanitation and medical care. The U.S. public believed the operation to be legitimate based on the perceived threat to the Kurds and *tangible evidence* of successfully aiding the Kurds.[165] However, the DoD had to rely on traditional forms of media such as news reporters to get the tangible evidence of videos and pictures to the public.

Because of the millions of people on social media sites, the DoD no longer needs to rely on traditional news media to get its message to the public.[166] Social media could drastically change how the DoD delivers its message in order to get public buy-in and support. Social media has already been used to help legitimize operations; for example, the U.S. military set up its own channel on the video-sharing website YouTube in 2007 to give the American public a "boots on the ground" perspective of Iraq.[167] The initial 25 short "clips included footage of U.S. soldiers firing at unseen snipers in Baghdad, handing out footballs to Iraqi children, and rescuing an Iraqi family injured by an explosive device."[168] This offered tangible evidence to the public that the U.S. military's presence was needed, and it was in fact helping Iraqi citizens. The use of social

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[165] J-7 Operational Plans and Interoperability Directorate.
[166] Hird, Jake. "20+ Mind-Blowing Social Media Statistics Revisited." *Econsultancy | Community of Digital Marketing and Ecommerce Professionals*. 29 January 2010. 20 May 2010. <http://econsultancy.com/blog/5324-20+-mind-blowing-social-media-statistics-revisited>
[167] Smith-Spark, Laura. "US Military Takes Iraq War to YouTube." *BBC News*. 14 May 2007. 11 May 2010. <http://newsvote.bbc.co.uk/2/hi/americas/6639401.stm>
[168] Smith-Spark, Laura.

media by the American public as well as the rest of the world continues to rapidly grow.[169] U.S. military should use this platform to communicate and provide information about military operations in order to help legitimize an operation to the public.

Combating Terrorism

Social media is currently being used to combat terrorism. Combating terrorism involves antiterrorism or counterterrorism actions that are taken to oppose terrorism from wherever the threat. "Counterterrorism is offensive measures taken to prevent, deter and respond to terrorism."[170] The military utilizes social media as a way to respond to terroristic acts by Islamic extremist groups. As stated earlier, the military launched its own YouTube channel called the Multi-National Force-Iraq.[171] According to Army Lieutenant Colonel Christopher Garver, a spokesman for the U.S. forces in Iraq, the clips showed a different perspective of Iraq and were used as a way to counter the messages of anti-American sites.[172]

Al-Qaeda, in particular, has done very well with using the internet to post footage of hostages or attacks on U.S. military forces and Iraqis. The military's use of YouTube has allowed it to move into this territory and respond to the acts of terrorism being posted on the internet. Social media allowed the military to disseminate its message to a vast audience all over the world and provided people with a different perspective of the operations in Iraq. Lieutenant Colonel Garver

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[169] "Led by Facebook, Twitter, Global Time Spent on Social Media Sites up 82% Year over Year." *Nielsen Wire*. The Nielsen Company, 22 January 2010. 20 May 2010. <http://blog.nielsen.com/nielsenwire/global/led-by-facebook-twitter-global-time-spent-on-social-media-sites-up-82-year-over-year/>
[170] J-7 Operational Plans and Interoperability Directorate.
[171] Smith-Spark, Laura.
[172] Smith-Spark, Laura.

believes it has even offered a future benefit by improving the chances that people will seek other

U.S. military information when interested in topics relating to Iraq.[173]

Humanitarian Assistance

Disaster relief efforts and humanitarian assistance operations are recently utilizing social media. "Humanitarian assistance operations relieve or reduce the results of natural or manmade disasters or other endemic conditions such as human pain, disease, hunger, or privation in countries or regions outside the United States."[174] On January 12, 2010, a 7.0 magnitude earthquake devastated the country of Haiti, yet the network infrastructure survived the earthquake, which made it possible to communicate via the web.[175] Within hours militaries and NGOs organized to support the humanitarian assistance operation, called Operation UNIFIED RESPONSE.[176]

As in all humanitarian assistance operations, timely and accurate information in the initial days is arguably as important as the availability of food and water. Unlike operations in Iraq and Afghanistan, the military is just one of many organizations that responded to help with the rescue and relief effort, so the DoD not only needed to share information with coalition partners, but also collaborate, communicate, and share information with other federal agencies and NGOs in order to identify risk zones and emerging threats. It was imperative that relief agencies were on the same page so efforts were not duplicated and resources went where they were most needed.

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[173] Smith-Spark, Laura.
[174] J-7 Operational Plans and Interoperability Directorate.
[175] Oreoluwa. "Social Media's Role in Reporting the Haitian Earthquake." *Blogspot.com*. 21 January 2010. 12 May 2010. <http://orenotes.blogspot.com/2010/01/social-medias-role-in-reporting-haitian.html>
[176] Webster, Kelly L. "Lessons From a Military Humanitarian in Port-au-Prince, Haiti." *SmallWarsJournal.com*. 28 March 2010. 4 April 2010. <http://smallwarsjournal.com/blog/2010/03/lessons-from-a-military-humani/>

However, many of these disaster relief partners could neither see nor access classified material; therefore, the need to "go unclassified early" was necessary.[177]

Fortunately, the DoD had already been using and testing different collaboration and information-sharing tools prior to the earthquake. Within a day of the earthquake, Defense Information Systems Agency (DISA) and U.S. Southern Command (USSOUTHCOM) quickly activated collaboration platforms that had been in a test phase.[178] The Haiti relief effort relied on the U.S. Pacific Command's (USPACOM) All Partner's Access Network (APAN) and a Joint Capability Technology Demonstration (JCTD) called Transnational Information-sharing Cooperation (TISC).[179] Both APAN and TISC were quickly opened up to all governments and NGOs involved in relief efforts.[180] Both TISC and APAN are communications-information tools which "link [NGOs] with the United States [government and military] and other nations for tracking, coordinating, and organizing relief efforts."[181] The US military controlled the tools and made them available to approved NGO partners.[182]

"Within days, over 1,700 organizations and individuals -- representing various military units, [NGOs] and other entities -- were using the system[s] to coordinate their work."[183] It allowed relief workers to ask questions on where to find experts in the area, report water shortages, direct gas trucks to where generators had run out, and even point out available resources including

[177] Webster, Kelly L.

[178] Brewin, Bob. "Defense Launches Online Systems to Coordinate Haiti Relief Efforts." *NextGov.com*. 15 January 2010. 20 May 2010. <http://www.nextgov.com/nextgov/ng_20100115_9940.php>

[179] Suss, Warren. "Command and Control: Information-sharing in the Next Engagement." *Government Computer News*. 20 May 2010. <http://gcn.com/microsites/2010/disa/command-and-control-information-sharing.aspx>

[180] United States Department of Defense. "In Depth: Collaboration." *DoDLive.mil*. 20 May 2010. <http://open.DoDlive.mil/open-government-plan/collaboration/>

[181] Hoover, Nicholas J. "Government IT Scramble To Help Haiti." *Informationweek.com*. 15 January 2010. 20 May 2010. <http://www.informationweek.com/news/government/leadership/showArticle.jhtml?articleID=222301203>

[182] Brewin, Bob.

[183] United States Department of Defense. "In Depth: Collaboration."

hospital beds or safe landing areas. [184][185] Furthermore, governments, companies, and private citizens used them to post what they were offering, thereby allowing disaster relief officials to determine what they needed prior to it being sent.[186] The Federal Chief Technology Officer, Aneech Chopra, noted that the tools enabled relief workers to locate Creole translators and counselors online throughout the world to help respond to text requests for help.[187]

Other social media tools were also used to assist in Operation UNIFIED RESPONSE in Haiti. OpenStreetMap is a free wiki world map that was used by NGOs and volunteers in Haiti.[188] The site hosted a Haiti Crisis Map that depicted the situation on the ground and allowed people to tag street names and mark the locations of aid stations, tent camps, and working hospitals on the map, so the information would be available to other relief workers.[189]

The Crisis Commons Wiki also allowed relief workers to share information and collaborate with one another by listing available resources such as situation maps, links to partner organizations on the ground, and even links that allowed people to report and locate persons in Haiti.[190] The site also offered the tool Ushahidi that offered an easy way to report incidences and emergencies such as information about collapsed buildings and road conditions by sending a text to a local

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[184] Ives, Bill. "US Military Enterprise 2.0 Platform is Helping Coordinate Haiti Relief." *Typepad.com*. 19 February 2010. 10 May 2010. <http://billives.typepad.com/portals_and_km/2010/02/us-military-enterprise-20-platform-is-helping-coordinate-haiti-relief.html>

[185] Pierce, David. "Pentagon's Social Network Becomes Hub for Haiti Relief." *Wired.com*. 21 January 2010. 11 May 2010. <http://www.wired.com/dangerroom/2010/01/pentagons-social-network-becomes-hub-for-haiti-relief/>

[186] Ives, Bill.

[187] Kash, Wyatt. "Cloud Clarifies Haiti Relief Work." *Government Computer News*. 19 March 2010. 2 April 2010. <http://gcn.com/articles/2010/03/19/disas-cloud-to-the-rescue.aspx>

[188] Hodge, Nathan. "Disaster Relief 2.0: Tech Tools Help Focus Haiti Resources." *Wired.com*. 20 January 2010. 12 May 2010. <http://www.wired.com/dangerroom/2010/01/disaster-relief-20-haitis-virtual-surge/>

[189] Hodge, Nathan.

[190] Hodge, Nathan.

number, sending an email, or sending a tweet[191] with the hashtags[192] #haiti or #haitiquake.[193]

Experts and volunteers then translated, verified, and mapped the information, thereby making the

report available to all relief workers.[194]

A few of the popular social media sites were also beneficial to Operation UNIFIED RESPONSE.

On Twitter, the hashtag #rescuemehaiti was used to direct U.S. Joint Task Force-Haiti and other

organizations to send search and rescue efforts to specific addresses around Port-au-Prince where

survivors were known to be trapped under rubble.[195] For example, the following Twitter

messages were sent:

> Christopher Frecynet still alive. They heard him screaming. 64 Rue Nord Alexis. Call
>
> cousin Daphney 509-3904698; 63 people still alive Carribean [sic] Market. survivor sent
>
> txt so we can send help. PLEASE LET PPL KNOW;   Latitude: 18˚31´25.74˝N
>
> Longitude: 72˚16´28.25˝W #bresma #Haiti We need food and water to approx. 150
>
> people there NOW.[196]

A Facebook group, Earthquake Haiti, had over 150,000 members only three days after the

earthquake struck. More than 4,000 photographs were posted by family looking for loved

ones.[197] The popular blog, Blogger.com, reported missing persons. For example, a blog written

by a man working with the nonprofit group World Wide Village, was used as an online bulletin

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[191] A tweet is a short message of 140 characters or less posted on Twitter.
[192] A hashtag allows any Twitter user to contribute to a thread of messages with a common theme.
[193] Hodge, Nathan.
[194] Oreoluwa.
[195] Brea, Jennifer. "Haiti: Rescuing Survivors, Searching for the Missing." *Globalvoicesonline.org*. 15 January 2010. 21 May 2010. <http://globalvoicesonline.org/2010/01/15/haiti-rescuing-survivors-searching-for-the-missing/>
[196] Brea, Jennifer.
[197] Brea, Jennifer.

board to post names of missing people.[198] Relief organizations relied on this information to

create an extensive online database of missing people.[199]

Military Support to Civil Authorities

Military support to civil authorities (MSCA) "operations provide temporary support to domestic

civil authorities when permitted by law and are normally taken when an emergency overtaxes the

capabilities of the civil authorities."[200] These operations often provide deployment of troops to

restore law and order after a riot or a natural disaster.[201] As stated earlier, Ushahidi was used in

the Haiti relief efforts; however, it was originally designed as a tool for mapping reports of

violence in Kenya after the post-election unrest in 2008.[202] People accessed the tool via the web

or mobile phone to report violence and peace efforts and map the information, thereby

aggregating the information in an open source platform.[203] During its initial deployment in

Kenya, 45,000 people placed reports on Ushahidi.[204] Since then, it has been modified and used in

South Africa for mapping violence fueled by racism and in India to monitor the recent local

elections.[205] Information from this form of social media could be very beneficial for MSCA

operations. Understanding the severity of the situation is necessary in order to take appropriate

actions and prevent harm to civilians as well as troops.

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[198] Keen, Judy. "Facebook, Twitter 2-Way 'Lifeline' for Haiti." *USAToday.com.* 16 January 2010. 11 May 2010.
<http://www.usatoday.com/tech/webguide/internetlife/2010-01-13-haitisocial_N.htm>
[199] Keen, Judy.
[200] J-7 Operational Plans and Interoperability Directorate.
[201] J-7 Operational Plans and Interoperability Directorate.
[202] Sample Ward, Amy. "The Social Media Response to Disaster in Haiti." *NTEN.org.* 17 February 2010. 12 May 2010.
<http://www.nten.org/blog/2010/02/17/social-media-response-disaster-haiti>
[203] Sample Ward, Amy.
[204] Sample Ward, Amy.
[205] Sample Ward, Amy.

Support for Counter Drug Operations and Force Protection

 "The DoD supports federal, state, and local law enforcement agencies in their efforts to disrupt the transfer of illegal drugs into the U.S."[206] For that reason understanding the violence in Mexico as a result of the drug cartels is necessary in order to protect forces carrying out military operations. However, no journalists are reporting on the violence as eight have been abducted, according to the Committee to Protect Journalists.[207] "More than 12,000 people have been murdered in Mexico since President Calderon began the government crackdown against the cartels."[208] The people have turned to social media tools to stay informed and safe. Social media has allowed civilians in many Mexican cities to gather and share important information to combat organized crime.[209] Citizens of Reynosa are using Twitter and created the hashtag, #Reynosafollow, to keep the public and the police informed of the violence as well as where cartels are operating. For example, one person tweeted "Shooting on the road MTY Victoria."[210] Anonymity is very important as many people have been kidnapped and murdered for speaking out against the drug cartels. To combat this problem a YouTube video was posted to show the people of Reynosa how to create anonymous Twitter accounts.[211]

The citizens of Mexico have evidenced the important sharing capabilities of Twitter that can be useful for military operations. This platform empowers civilians to anonymously pass

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[206] J-7 Operational Plans and Interoperability Directorate.

[207] Pena, Alex. "Mexican Drug Wars: When Media Silenced, Twitter Alerts Citizens." *ABCNews.com*. 10 May 2010. 13 May 2010. <http://abcnews.go.com/print?id=10586021>

[208] Ross, Alec. "U.S. Diplomacy in the Age of Facebook and Twitter: An Address on 21st Century Statecraft." *State.gov*. 17 December 2009. 20 May 2010. <http://www.state.gov/s/c/remarks/135352.htm>

[209] Pena, Alex.

[210] Pena, Alex.

[211] Valencia, Nick. "Residents Use Social Media to Fight Organized Crime in Mexico." *CNN.com*. 8 March 2010. 21 May 2010. <http://www.cnn.com/2010/TECH/03/08/mexico.crime.social.media/index.html>

information which could allow the military to set up preemptive actions and operations with increased accuracy. The commander of U.S. Special Operations Command (USSOCOM), Admiral Eric Olson, commented on this benefit of social media and said it aids with "force protection issues." For example, friendly villagers could warn soldiers of impending threats, and the military could also use Twitter to warn people of dangerous areas, depending on the operation. [212] The local authorities in Reynosa understood that the people needed information on the current situation, so they opened their own Twitter account to let people know where and to what they are responding. For example, local authorities tweeted, "Situation of risk in the area of Col. Achilles Serda, Plaza. Unexploded ordinance. TAKE PRECAUTIONS."[213]

Intelligence and Information Gathering

Social media will not always directly benefit military operations; however, the planning process of MOOTW will often benefit from the use of social media. In a recent article by Defense Systems: Knowledge Technologies and Net-Centric Warfare, "Social tools are now mission tools . . . They link knowledge management and situational awareness."[214] Intelligence and information gathering is necessary for any military operation, and social media is being used to assist with this ongoing process. The J-7 Joint Force Employment Briefing differentiates information gathering from intelligence gathering because the former involves "coordination and interaction with [NGOs] or private voluntary organizations . . . ."[215] Operation UNIFIED RESPONSE clearly exemplified how social media was used by NGOs and the U.S. military to

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[212] Pena, Alex.
[213] Pena, Alex.
[214] Corrin, Amber.
[215] J-7 Operational Plans and Interoperability Directorate.

coordinate and collaborate for information-gathering purposes. However, when it comes to intelligence gathering, human intelligence may provide the most useful source of information when MOOTW are conducted outside the U.S. Human intelligence often supplements other intelligence sources with "psychological information not available through technical means."[216]

The following are examples of how the Department of Homeland Security (DHS) and the DoS relied on social media for intelligence gathering. Immediately following the earthquake in Haiti, the DHS monitored publicly available information. This information was posted by first responders, press, humanitarian organizations, and members of the public on wikis, blogs, social networking sites, and message boards in order to provide situational awareness and a common operating picture of the Haiti relief effort for the entire federal, state, local, and foreign governments, and private sector partners. The information was used to assist decision-makers in the response, recovery, and rebuilding effort in Haiti. The DHS Office of Operations Coordination and Planning believed that the aggregation of data published via social media sites allowed them "to provide more accurate situational awareness, a more complete common operating picture, and more timely disaster-related information for decision-makers."[217] A single source approach to intelligence gathering could not accurately provide the complete picture. The Office of Operations Coordination and Planning also recognized there was a possibility that inaccurate information could be generated but dismissed the concern by stating, "[t]he community is largely self-governing and erroneous information is normally expunged or debated

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[216] J-7 Operational Plans and Interoperability Directorate.
[217] United States Department of Homeland Security. "Privacy Impact Assessment for the Office of Operations Coordination and Planning Haiti Social Media Disaster Monitoring Initiative."

rather quickly by others within the community with more accurate and/or truthful information."[218]

The DoS depended on social media following Iran's presidential election. Despite the fact that authorities were blocking text-messages on cell phones and Twitter posts, Iranians were able to circumvent the official barriers and gain access to Twitter.[219] DoS official, Jared Cohen, requested that Twitter delay scheduled maintenance of its global network, which would have cut off service while Iranians were using Twitter to swap information and inform the outside world about the mushrooming protests around Tehran. This request was "another new-media milestone: the recognition by the United States government that an Internet blogging service that did not exist four years ago has the potential to change history in an ancient Islamic country." Twitter complied with the request and recognized "the role [it] is currently playing as an important communication tool in Iran."[220]

Psychological Operations

Social media could have an impact on psychological operations (PSYOP) that provide significant support to military operations. "Military PSYOP constitute a planned, systematic process of conveying messages to and influencing selected target groups. These messages may include safety, health, public service, and messages designed to favorably influence perceptions of U.S.

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[218] United States Department of Homeland Security. "Privacy Impact Assessment for the Office of Operations Coordination and Planning Haiti Social Media Disaster Monitoring Initiative."
[219] Rosenberg, Simon. "More on the State Department and Social Media." *NDN.org*. 17 June 2009. 14 May 2010. <http://ndn.org/blog/2009/06/more-state-department-and-social-media>
[220] Rosenberg, Simon.

forces and operations."[221] There are three audiences on which PSYOP can be focused: U.S. citizens; the international community; and the target countries citizens.[222] First, the U.S. must convince its own population that either war or MOOTW is in the best interest of the country. This is similar to the principle of legitimacy as discussed above; if the public sees the operation as legitimate to the national interest they will give their support. Vietnam War was clearly an example of where the U.S. military did not gain the American public's support; however, prior to entering Iraq, PSYOP were conducted to convince the American people and the international public that there was a need to attack Iraq because of the September 11th terrorist attacks and the belief that Iraq had weapons of mass destruction. Next, they must convince the international community that these actions will benefit the world community. The last step is convincing the target countries citizens that they will be better off without their current leader. After hostilities end, the most important task is legitimizing the operation.[223]

The U.S. military performed PSYOP that consisted of distributing radios, pamphlets, and even televisions and encouraged Iraqis to listen to their message.[224] For example, in 2003 the U.S. military started distributing a free newspaper called *Baghdad Now*.[225] Every month, 70,000 issues of the newspaper were distributed to the people in Baghdad.[226] The paper increased public awareness toward safety hazards, such as celebratory fire, and it also informed the community on what the U.S. and coalition forces are doing for Iraq, such as building schools and improving

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[221] J-7 Operational Plans and Interoperability Directorate.
[222] Asisian, Njdeh, "An Iranian View of US Psychological Operations in Iraq and Afghanistan." *Air University* (2007): 5-12. Print.
[223] Asisian, Njdeh.
[224] Asisian, Njdeh.
[225] Rickert, Sgt. Mark S. "Psychological Operations Team Makes Friends Through Newspaper." *Defense.gov*. 15 December 2003. 12 May 2010. <http://www.defense.gov/news/newsarticle.aspx?id=27624>
[226] Rickert, Sgt. Mark S.

their way of life.[227] U.S. Army Sergeant Richard K. Wilson, who is the tactical psychological operations team chief, said handing out newspapers gives the soldiers "instant access" to the community, and these face-to-face encounters allow bonds to be formed.[228]

Social media could benefit PSYOP particularly when the operations are focused on the American people and the international public. Social media on average is used by 72% of online users in developed countries, Facebook being the most popular.[229] The number of people using social media should be leveraged by the DoD in its PSYOP in order to gain the necessary support prior to the operation and then to legitimize the operation once concluded. Use of social media in PSYOP may be difficult in some countries because the country's network infrastructure may not provide access to the internet, or access to internet sites may be filtered by the current government. However, depending on the geographic location of the mission, social media is most likely accessible to citizens through mobile devices and therefore should be used in PSYOP to further the U.S. military's goals.

Public Diplomacy

The benefits of social media to public diplomacy have been recognized by the DoS Secretary of State, Hillary Rodham Clinton, who speaks regularly about the power of e-diplomacy, particularly in places where the mass media are repressed.[230] The DoS has even organized a visit to Baghdad between Iraq's deputy prime minister and Twitter co-founder along with other

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[227] Rickert, Sgt. Mark S.
[228] Rickert, Stg. Mark S.
[229] Van Belleghem, Steven. "Social Media Around the World." *Slideshare: Present Yourself.* 23 May 2010. <http://www.slideshare.net/stevenvanbelleghem/social-networks-around-the-world-2010>
[230] Rosenberg, Simon.

executives in Silicon Valley to discuss how to "rebuild the country's information network and to sell the virtues of Twitter."[231]

Social media has had a positive impact on the DoS's diplomatic efforts. Recently, the former Deputy Assistant Secretary of the DoS for Public Diplomacy, Colleen Graffy, utilized social media, particularly Twitter, to send her message on foreign media prior to arriving in foreign countries and after leaving. Her use of Twitter prompted different reactions, public discussion, and even controversy. However, one Romanian student told her, "We feel like we already know you—you are not some intimidating government official. We feel comfortable talking with you."[232] Graffy's use of new media not only humanized her and had a way of softening the audience prior to her initial in-person meeting, but also kept them aware of her after she left.

Public Affairs

The ability of the traditional news media to provide worldwide coverage by satellite communication makes public affairs even more critical. "The media can affect the perceived legitimacy of an operation and, therefore, influence the success or failure of that operation."[233] However, social media can provide new platforms for public affairs efforts. The DoD use of social media has allowed it to report information that traditional news media was not covering. For instance, the DoD launched a new social media tool called Bloggers Roundtable that uses traditional communications such as conference calls to reach bloggers that are supported by a

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[231] Rosenberg, Simon.
[232] Drapeau, Mark, and Linton Wells II.
[233] J-7 Operational Plans and Interoperability Directorate.

variety of web 2.0 tools.[234] The DoD quickly realized that bloggers are more apt to share accurate information with others and thus expand the reach of its message. The use of social media has kept the public more informed about military operations and could also help legitimize current operations.

In May, Bloggers Roundtable spoke with U.S. Army Colonel Thomas J. Umberg, NATO Training Mission-Afghanistan (NTM-A), Chief of Anti-Corruption.[235] One of NTM-A/Combined Security Transition Command-Afghanistan's (CSTC-A) top priorities is to team with and assist the Afghani government in developing and growing leaders for today and tomorrow and to generate a professional, competent, tactically self-sufficient Afghan National Security Force (ANSF). A challenge to this mission is the corruption that exists in Afghanistan and within the ANSF. NTM-A is partnering with the ANSF to develop systems and processes to confront this challenge and reduce opportunities for corruption through advising, training, mentoring, and resource support.[236] "These processes include paying the soldiers and patrolmen electronically, inventorying the equipment and personnel within the ANSF, increasing fuel, ammunition, and weapon accountability, as well as identifying those who engage in corruption."[237] NTM-A is also working with the international community and the U.S. Embassy to meet this challenge.[238]

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[234] "DoDLive Bloggers Roundtable." *Blog Talk Radio*. 24 May 2010. <http://www.blogtalkradio.com/bloggersroundtable>

[235] Cragg, Jennifer. "DoDLive Bloggers Roundtable: NATO Training Mission-Afghanistan." *DoDLive.mil*. 13 May 2010. 17 May 2010. <http://www.DoDlive.mil/index.php/2010/05/DoDlive-bloggers-roundtable-nato-training-mission-afghanistan-2/>

[236] Cragg, Jennifer.

[237] Cragg, Jennifer.

[238] Cragg, Jennifer.

Other agencies are also leveraging the benefits of social media in their public affairs efforts. As discussed in the *Internal and External Defined* section, DipNote (the DoS blog) offers public access to a broad range of foreign policy information. A recent DipNote blog post told the story of young girls in Afghanistan who took part in a project funded by the DoS that created a system to provide their school access to drinking water. [239] The DoS's blogging platform allowed it to share this positive story with the public. These programs have helped to legitimize operations in Afghanistan and share information to potential military recruits interested in the work the military does. Without such social media tools, this information likely would not have been shared with the American public.

Troop Morale

Social media has had a great impact on troop morale. Deputy Director at the DHS, Mary Ellen Seale, said "[f]acebook has been the greatest tool in the history of technology in allowing troops to communicate back home while stationed overseas."[240] Prior to the release of the DTM 09-026, "Responsible and Effective Use of Internet-based Capabilities," the DoD blog "DoDLive" started a Web 2.0 Guidance Forum. One of the topics was the use of Web 2.0 capabilities by military families. This topic alone had 300 comments posted by family members describing stories of how social media has allowed service members overseas to tell their kids they love them before bed, chat with friends and family about their day, and see photos and video of

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[239] Mussman, Anna P. "Afghan Girls Bring Drinking Water to Their School." *DipNote: U.S. Department of State Official Blog*. 31 March 2010. 13 May 2010. <http://blogs.state.gov/ap/index.php/site/entry/afghan_girls_water_school>
[240] Seale, Mary Ellen. Personal interview. 16 Mar. 2010.

family.[241] One woman also said that Facebook even allowed her to connect with other parents who have children serving overseas and can relate to her situation.[242]

These tools are also used as a way to show support to the individuals serving in the U.S. military. For instance, after the Fort Hood shooting on November 5, 2009, a Facebook user created a page called "Prayers for Fort Hood," and nearly 19,000 people signed up as members a day later.[243] Many shared comments of support and condolences for the families affected. Another example comes from a woman who lost her husband in the September 11th terrorist attacks and started using social media to support the Marines.[244] She spends hours each day reaching out to Marines and their families to remind them that people back home do care.[245]

Soldiers are not only using social media to communicate with friends and family; they are also using social media as an outlet to cope with and share the challenges of military life. Armedzilla was launched in April 2010 and is dedicated to providing a communication platform where service members can support each other as they transition back to civilian life and "cope with the issues unique to wearing the uniform."[246] Other services members set up blogs in order to share their personal stories and experiences. For instance, U.S. Air Force (USAF) Senior Master Sergeant Rex Temple was on his fourth deployment when he started an award-winning blog called "Afghanistan: My Last Tour" in which he described the work he was doing and his

[241] Lyles-Santiago, Tamie. "DoD Web 2.0 Guidance Forum." 6 August 2009. 5 May 2010.
<http://web20guidanceforum.DoDlive.mil/>
[242] Lyles-Santiago, Tamie.
[243] Beizer, Doug. "Military Uses Social Media to Share Info on Fort Hood Shootings." *FCW.com*. 6 November 2009. 13 May 2010. <http://fcw.com/articles/2009/11/06/fort-hood-social-media.aspx>
[244] Altman, Howard. "Deployed Military Use Social Media to Keep in Touch." *The Tampa Tribune*. 23 April 2010. 13 May 2010. <http://www2.tbo.com/content/2010/apr/23/deployed-military-using-social-media-keep-touch/news-metro/>
[245] Altman, Howard.
[246] Rosen, Andrew G. "Iraq War Vet Launches ArmedZilla, Social Network for Troops." *Socialtimes.com*. 13 April 2010. 24 May 2010. <http://www.socialtimes.com/2010/04/iraq-war-vet-launches-armedzilla-social-network-for-troops/>

experiences in Afghanistan.[247] Many of these blogs are found on Milblogging.com, the world's

largest index of military blogs.[248] As of May 2010, there were 2,714 military blogs from 43

different countries.[249]

Admiral Mike Mullen, chairman of the Joint Chiefs of Staff, recently announced that he will be

using social media as the primary means of spreading information and urging discussions among

audiences.[250] Social media has enabled many to get their message and ideas to a vast audience

and allowed for conversations to take place. As evidenced by the examples above, the DoD and

government are leveraging some benefits of social media. However, as this form of media keeps

growing, reassessing its use and potential benefits is necessary to ensure the DoD is properly

leveraging social media in order to meet its mission goals.

Risks

Although there are many benefits from the usage of social media, it is important to understand

that they also introduce, or reintroduce, a number of online risks, including productivity loss,

bandwidth strain, and assisting social engineering attacks among others. While these risks

already exist on the Internet, social media has become a unique media for attacks, making its use

riskier in some aspects. One of the primary reasons for this occurrence is because of the rise in

popularity of such sites. As is understood and stated by many experts, a higher population

density tends to lead to higher crime rates. The situation is identical for social media and

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[247] Temple, Sgt. Rex. "Afghanistan: My Last Tour." 24 May 2010. <http://afghanistanmylasttour.com/>
[248] "Milblogging.com." *Milblogging.com*. 24 May 2010. <http://www.milblogging.com/>
[249] "Milblogging.com."
[250] Weigelt, Matthew. "Joint Chiefs Chairman Opts for Richer Social Media to Get the Word Out." *Defensesystems.com*. 10 March 2010. 13 May 2010. <http://fcw.com/articles/2010/05/10/web-mullen-joint-chiefs-social-media-memo.aspx>

especially social networking sites, as their population has rapidly grown in recent years. As a 2010 Security Threat Report by Sophos, an international IT security company, states, "2009 saw Facebook, Twitter and other social networking sites solidify their position at the heart of many users' daily internet activities and saw these websites become a primary target for hackers. [251] Because of this, social networks have become one of the most significant vectors for data loss and identity theft."[252]

Michael Murray, a security consultant for Foreground Security, further agrees with this idea as he states in his online blog, "It seems obvious that the more social networking we do, the more vulnerable we make ourselves to breeches in security. Viruses can spread quickly, data can be compromised and entire systems can be severely hampered."[253] Utilizing social media must be done while having knowledge of the various risks they introduce. Risks such as social engineering, spear phishing, malware distribution, loss of productivity, user naiveté, operational security (OPSEC) violations, and strain on bandwidth will be discussed.

Social Engineering

During a roundtable discussion, representatives from Core Security Technologies mentioned that the problem with social networking sites is that everyone wants to be on the "big one." They stated that the more information given, the more useful the network is, and the more useful the

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[251] "Sophos security threat report reveals malware attacks are broadening in 2010." *Antivirus | Security Software | Data Protection | Encryption Software for Businesses – Sophos.* 11 May 2010. <http://www.sophos.com/security/topic/security-report-2010.html>.

[252] "Sophos security threat report reveals malware attacks are broadening in 2010."

[253] Murray, Michael. "Social Networking and Security." *Michael Murray & Associates.* 13 May 2010. <http://episteme.ca/2009/07/13/social-networking-and-security/>

information and network is for hackers.[254] The kinds of information displayed on social

networking sites, such as family, friends, hobbies, jobs, and recent events, can contribute to a

plan of an attack for an enemy. An example of a method of attack an enemy could utilize is

social engineering. In a social engineering presentation Murray quotes a definition of social

engineering from Wikipedia: it is "the practice of obtaining confidential information by

manipulating users."[255] Social engineers accomplish the manipulation of users with techniques

such as tricking them into thinking they are a person with an adequate rank in an organization to

demand certain kinds of information from them.

Social engineering has been known and guarded against in the DoD for some time but through

traditional means of communication such as the phone. For instance, employees in the DoD are

advised not to answer telemarketers' or surveyors' questions because the background of the

caller is unknown. This same type of precaution and awareness needs to be brought into all DoD

and government employees' realm of knowledge in order to safeguard against attacks since, as

Murray states, humans are naturally and automatically vulnerable to each other and social

engineers exploit this.[256] Because of the nature of social media, especially social networking

sites, this vulnerability is heightened as people are usually more trusting or more naïve than in

more traditional mediums. Hackers are able to gain trust of victims by hacking the accounts of

the victims' friends to send malicious code to the victim or by using a legitimate-looking profile.

Behind the screen of a computer and through e-mails and messages that seem legitimate but are

actually malicious, attackers are leveraging this vulnerability through new methods.

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[254] Kellerman, Tom, Pedro Varangot, and Ariel Waissbein.
[255] Murray, Michael.
[256] Murray, Michael.

Phishing and Spear Phishing

Phishing is one method of social engineering and is defined in *Social Phishing* as "a form of deception in which an attacker attempts to fraudulently acquire sensitive information from a victim by impersonating a trustworthy entity."[257] The technique has existed for awhile as plenty of people are aware of the spam messages requesting assistance in transferring five million dollars or offering congratulations for winning the British lottery; however, social media sites offer a unique evolution in this realm. For example, a more advanced form of phishing can be accomplished through compromising "Bob's" account on a social networking site by obtaining his username and password and subsequently sending a message with a malicious link to "Alice." [258] The message can look highly believable by referencing an event that both Bob and Alice actually attended, such as, "Hey Alice, look at the pics I took of us last weekend at the picnic. Bob."[259] This event actually took place in fall 2009 at a large U.S. financial firm, and indeed, Alice clicked on the link which resulted in hackers taking control of her Facebook account and laptop through malicious software (malware), while also obtaining her company log-on.[260] The hackers roamed the firm's servers, compromised two of them, and had access to confidential information for weeks.[261] While phishing e-mails have had a limited amount of success, as most are recognized to be spam, it is much more unlikely for a person to realize that a message coming from their friend on a social media site could also be malicious.

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[257] Jagatic, Tom N., Nathaniel A. Johnson, Markus Jakobsson, and Filippo Menczer. *Communications of the ACM*. New York: ACM, 2007. Print.
[258] Dionise, Jeff, and Sam Ward. "How cybercriminals invade social networks, companies." *USA Today*. 4 March 2010. 17 March 2010. <http://www.usatoday.com/tech/news/computersecurity/2010-03-04-1Anetsecurity04_CV_N.htm>
[259] Dionise, Jeff, and Sam Ward.
[260] Dionise, Jeff, and Sam Ward.
[261] Dionise, Jeff, and Sam Ward.

The *Social Phishing* report summarizes how easily and effectively a phisher can exploit social network data found on the Internet to increase the yield of a cyber attack. [262] The results, shown in **Figure 2**, show that a much higher percentage of students in the "social" group successfully had their accounts hacked.

	Successful	Targeted	Percentage
Control	15	94	16%
Social	349	487	72%

Figure 2: Results of Social Networking Phishing Attack[263]

It is much easier to manipulate users when background information on their target, such as who is in their circle of friends, is publically available. This is especially true for the social networking site LinkedIn, which aims to attract a professional, career-focused crowd. Many users post their job status and ranks or positions without realizing the vulnerability this introduces. In April of this year, the Internet Storm Center (ISC) recognized a phishing e-mail regarding a "legal threat" to be malicious.[264] Within a week, an ISC reader realized that five people at the large real estate firm he works at had been targeted with great precision–"all five recipients were in fact involved in the handling of money for [his] employer."[265] After some googling he found the potential reason why those employees had been picked–"All five staff

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[262] Jagatic, Tom N., Nathaniel A. Johnson, Markus Jakobsson, and Filippo Menczer.
[263] Jagatic, Tom N., Nathaniel A. Johnson, Markus Jakobsson, and Filippo Menczer.
[264] Ullrich, Johannes. "More Legal Threat Malware E-Mail." *SANS Internet Storm Center; Cooperative Network Security Community - Internet Security.* 13 April 2010. 13 May 2010. <http://isc.sans.org/diary.html?storyid=8620>
[265] Wesemann, Daniel. "Linked into scams?." *SANS Internet Storm Center; Cooperative Network Security Community - Internet Security*. 19 April 2010. 13 May 2010. <http://isc.sans.org/diary.html?storyid=8650>

members were maintaining profiles on LinkedIn, and their profile proudly proclaimed a job title that made it patently obvious that they had access to the firm's banking information."[266] Adam Ross, a managing editor at the SysAdmin, Audit, Network Security (SANS) Institute, summed up the importance of this risk, stating, "[t]oday's spear phishing attacks have taken on a new significance. They are becoming increasingly sophisticated, tailored, professional, personal and prevalent."[267]

Information Security and Web Vulnerabilities

People are always at the heart of issues such as social engineering and phishing; however, the sites that many choose to visit have numerous opportunities to host vulnerabilities as well. As stated earlier, the more people who frequent a site, the more likely that site will be targeted in attacks. Facebook, for example, is no exception as the third party applications it hosts contribute to a wealth of security and information vulnerabilities. The applications are never approved, endorsed, or reviewed by Facebook, and any use of them is at the user's risk.[268] However, it is likely that many people do not realize that installing one of these applications gives the web application developers access to a wealth of information about themselves as well as all of their "Facebook friends." Such information can contribute to social engineering and phishing attacks mentioned previously. According to the article "Hackers target Facebook apps," developers do

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[266] Wesemann, Daniel.

[267] Ross, Adam. "'Most Dangerous' - Spear Phishing." *Cybersecurity Report*. National Journal Group, Inc., 10 April 2006. 13 May 2010. <http://cybersecurityreport.nextgov.com/2010/04/most_dangerous_attacks_-_spear_phishing.php>

[268] Soghoian, Chris. "Hackers target Facebook apps." *Technology News - CNET News*. 27 March 2008. 13 May 2010. <http://news.cnet.com/8301-13739_3-9904331-46.html>

not seem to know much about basic security, and in effect, malicious hackers are able to access and change what should be private user data managed by the developers.[269]

Nonetheless, Facebook is only an example and is not the only social media site that has these vulnerabilities. A paper titled "Guidelines for Secure Use of Social Media by Federal Departments and Agencies" recognizes web applications as dynamic web pages that utilize scripting (an aspect of programming languages) to enable advanced functionalities, which inherently bring on additional opportunities for exploitation.[270] It then states that "[s]ocial media websites are advanced web applications, as their use requires a high level of interaction and capabilities. This opens up social media websites to a wide range of vulnerabilities exploitable by attackers."[271] As social media sites are open to such vulnerabilities, they are at risk of becoming a vehicle for delivery of malicious software and a variety of web attacks. In summary of their web application attacks section, the U.S. Federal Chief Information Officers Council states that the implications for a federal user or a federal account may be more serious as "unofficial posts, tweets, or messages may be seen by the public as official messages, or may be used to spread malware by encouraging users to click links or download unwanted applications."[272]

While social media sites introduce a variety of new vulnerabilities and risks, much of it also involves user naiveté and lack of security awareness. Representatives from Core Security Technology explained that social networking sites are vulnerable by design, but a site such as

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[269] Soghoian, Chris.
[270] Federal Chief Information Officers Council.
[271] Federal Chief Information Officers Council.
[272] Federal Chief Information Officers Council.

Twitter is safe if the user knows how to safely browse. [273] Thus, while numerous technical risks

and solutions exist, it is vital to train users on the importance of awareness of cyber security

threats and how to browse the Internet safely. Graham Cluley, a senior technology consultant at

the security firm Sophos, stated that social networking sites are as insecure and uncontrolled as

e-mail was in 2002. [274] He declared the need to enforce good password habits, monitor all third

party applications, and above all, provide security awareness education to users in addition to

utilizing software technology to mitigate threats. [275] These subjects will be discussed in detail in

Recommendations.

Operational Security (OPSEC) Violations

The main functionalities of many social media sites can be directly harmful to OPSEC. Allowing

and promoting a user to post information relating to current locations, future destinations, dates

and times of exercises or missions, names and locations of friends or family, or status of

deployment are all potential OPSEC violations. Ira Winkler, founder of Internet Security

Advisors Group and former National Security Agency (NSA) employee, expressed that people

not only poorly protect social networking accounts, but also do not realize they should consider

the type of information they post on social media sites. [276] He stated that open information costs

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[273] Kellerman, Tom. Pedro Varangot. Ariel Waissbein. Personal Interview. 2 March 2010.
[274] Cluley, Graham. Personal interview. 3 March 2010.
[275] Cluley, Graham.
[276] Winkler, Ira. Personal interview. 2 March 2010.

lives and suggested an awareness-strengthening statement of "your actions can kill your loved ones."[277]

A serious OPSEC violation occurred in March of this year when an army raid in Israel had to be cancelled after a soldier disclosed the name of the combat unit, the place of the operation, and the time it was to take place on Facebook.[278] Fellow soldiers reported this leak of sensitive information, and the offending soldier was relieved of duty and received a consequence of prison time.[279] However, had this leak not been reported in a timely manner, this OPSEC violation could have seriously compromised the outcome of the mission as well as soldiers' lives.[280] Because social media is new to the Internet's landscape, it is vital for the DoD and U.S. government to respond quickly and thoroughly to emerging threats. Not only may OPSEC violations occur from personnel posting information online, but the simple act of taking part in social media at work introduces another threat in itself. Attackers, hackers, and cyber criminals alike may become acutely aware of when a user might be accessing those sites from sensitive networks such as the NIPRNET and may attack with a fine-tuned approach in order to breach security measures.

Loss of Productivity

A risk with less serious consequences deals with the loss of productivity that may occur by allowing access to social media sites while at work. While social media has come to be a new

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[277] Winkler, Ira.
[278] Mackey, Robert. "Israeli Raid Canceled After Facebook Leak." *New York Times.* 3 Mar. 2010. 4 March 2010.
<http://thelede.blogs.nytimes.com/2010/03/03/israeli-raid-canceled-after-facebook-leak/>
[279] Mackey, Robert.
[280] Mackey, Robert.

medium for communication between people, much of it is perceived as unnecessary on a day-to-day basis. At one point during our meeting, Ira Winkler asked the question "[w]hat is the justification to have at work?"[281] In his opinion, people should never have social networking up at work, as it is up to a 95% waste of time and is not worth the risks.[282]. The Associated Chambers of Commerce and Industry of India conducted a survey of nearly 4,000 corporate employees of all ages about their use of social media at work. The results further Mr. Winkler's opinion. [283] The survey found that an average corporate employee spends an hour out of every eight hour day on a social networking site, resulting in an overall 12.5% loss of productivity.[284] A similar study conducted by Network Box, a security company, consisted of analyzing 13 billion Uniform Resource Locators (URL) used by businesses during the first quarter of 2010. [285] Results showed that "more business internet traffic goes to Facebook than to any other internet site" based on the number of "hits" Facebook received, accounting for 6.8% of all business internet traffic.[286]

In addition to wasting time that could be used productively, social media sites may be addictive for some people. The International Center of Media and Public Agenda recently conducted a study in which 200 university students abstained from all forms of media, such as texting, Facebook, and instant messaging, for 24 hours. [287] Not only did the study conclude that "most

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[281] Winkler, Ira.
[282] Winkler, Ira.
[283] "Corp. Employees Productivity Is Killed By 12.5% In Surfing Sites: ASSOCHAM Survey." *The Associated Chambers of Commerce and Industry of India*. 20 December 2009. 5 May 2010. <http://www.assocham.org/prels/shownews.php?id=2265>
[284] "Corp. Employees Productivity Is Killed By 12.5% In Surfing Sites: ASSOCHAM Survey."
[285] Hartley, Kate. "Business internet traffic increases to Facebook and YouTube." *Network Box*. 20 April 2010. 12 May 2010. <http://www.network-box.com/node/533>
[286] Hartley, Kate.
[287] Kraabel , Michael. "Is Social Media Addiction Real?." *Michael Kraabel - Creative Director*. 30 April 2010. 15 May 2010. <http://www.kraabel.net/2010/04/30/students-denied-social-media-go-through-withdrawal/>

college students are not just unwilling, but functionally unable to go without their media links to the world," but the students also exhibited symptoms due to the withdrawal from their apparent addiction:

> Most students wrote that they experienced similar symptoms to people suffering from drug and alcohol addictions, including feelings of withdrawal, anxiety, feeling antsy, miserable, jittery and crazy. Some even wrote that they 'hated the media-free period, hated the assignment and hated being away from their cell phones.'[288]

It is obvious that social media has become embedded in many people's lives, and as such, its use in the workplace must be carefully considered.

Figure 3: Results of Social Media Use Study[289]

On one hand, many people use media in a social, entertaining, and casual way. However, for some people, it is clearly a vital aspect of their life. A Retrevo Gadgetology report, an ongoing

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[288] Kraabel , Michael.
[289] Eisner, Andrew.

study of people and electronics sponsored by the shopping and review site Retrevo.com, recently

published results of a study that asked over 1,000 social media users questions such as when,

where, and how much time they spend on social media sites. Results show that not only do users

check their social sites throughout the day, but they are also waking up to check them at night

and when doing tasks such as attending a meeting or eating a meal.[290] **Figure 3** shows the results

of the following questions: "Do you check/update Facebook or Twitter after you go to bed?" and

"How long can you go without checking in on Facebook?"

Bandwidth Strains

It is important for the DoD and government to consider the potential bandwidth strains these

social media sites could introduce if allowed. This is significant because a social media site such

as YouTube, which streams video clips, requires much more bandwidth than a typical text-based

web page. A study released on April 15, 2010 conducted by Network Box found that "more

business bandwidth is taken up with YouTube videos than anything else: 10 per cent [sic] of all

corporate bandwidth is taken up watching YouTube videos, an increase of two per cent [sic]

since the last quarter of 2009."[291] It is evident from the *Cultural Shift in Communications* section

that social media use is taking a significant role in many lives, personal as well as professional. It

is important that the shift does not take away the bandwidth needed for necessary business

duties.

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[290] Eisner, Andrew. "Is Social Media a New Addiction?." *Retrevo*. 16 March 2010. 15 May 2010.
<http://www.retrevo.com/content/blog/2010/03/social-media-new-addiction%3F>
[291] Hartley, Kate.

Overall Risk Summary

Overall, many cyber security experts who met with the team via teleconferences, meetings, or in attendance at the Rivest, Shamir, and Adleman (RSA) IT security conference agreed that social media sites are generally not worth the risks they pose to peoples information and systems. For those familiar with the NIPRNET, the general consensus was that it is a bad idea and *definitely* not worth the risk. While there is no easy answer as to whether to allow or disallow social media, it is important to consider the many risks they may introduce.

POLICY

It is important to note that forward-thinking policies are paramount to the successful implementation of social media within the DoD. Without a policy to guide the arrival of these tools, they can become counterproductive and even dangerous as stated in the *Risks* section. Although the popularity and usage of social media are rapidly increasing, many companies still lack formal policies to ensure that these forms of media are beneficial. A Russell Herder and Ethos Business Law study conducted in July 2009 researched U.S. businesses' perception and actions taken with regard to social media. The study found that only 31% of 438 companies had a social media policy in place.[292] Many businesses claimed their nonexistent social media policies were due to a lack of knowledge on what a good policy should include.[293] The DoD currently seems to be among those that are not sure what is needed in an effective social media policy. The Office of the Secretary of Defense (OSD) released DTM 09-026 "Responsible and Effective Use of Internet-based Capabilities" on February 25, 2010 to guide DoD usage of social media tools. This memorandum explains that more research must be done before converting to a new issuance in late August 2010.[294]

Social media are leaving people guessing about where to start when it comes to usage within organizations. To form a better understanding, this section will explore the banning versus open

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[292] Herder, Russell, and Ethos Business Law. "Social Media: Embracing the Opportunities, Averting the Risks." *RussellHerder*. August 2009. 10 May 2010. <http://www.russellherder.com/SocialMediaResearch/>

[293] Herder, Russell, and Ethos Business Law.

[294] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities." *Office of the Secretary of Defense* (2010): 1-9. Print.

usage of social media, private and public sector policy trends, DTM 09-026, and current best practices in social media policy and guidelines.

Banning Versus Open Usage of Social Media

Organizations in any industry must answer the following fundamental question when creating their social media policy: do employees need access to these sites at work? This simple question has been under scrutiny within the DoD and private industry with good arguments for and against usage.

Upon hearing the issues that stem from the usage of social media, many businesses have jumped to the conclusion that it is too dangerous for their organization and subsequently have banned the use of social media. One of the main reasons private companies give for the ban is a loss in productivity. The Assocham study of nearly 4,000 corporate employees in India (cited previously in the *Risks* section) found a 12.5% drop in productivity associated with the use of social media.[295] The same year the Assocham study was released, ScanSafe's analysis of over a billion web requests confirmed a 20% increase in the number of organizations blocking these sites from February to August 2009.[296] This increased the amount of businesses completely banning the tools to 76%.[297] Slightly fewer federal agencies ban social media than the figures from ScanSafe's analysis of web requests. A Market Connections, Inc. study focusing on the perspectives and practices of social media by U.S. government employees found that 60% of

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[295] "India Survey Says Facebook Affects Productivity." *BBC NEWS*. 21 December 2009. 5 May 2010.
<http://news.bbc.co.uk/2/hi/south_asia/8423888.stm>
[296] "Employers Crack down on Social Networking Use." *ScanSafe - Speed. Scalability. Security.* 19 August 2009. 8 May 2010.
<http://www.scansafe.com/content/employers-crack-down-social-networking-use>
[297] "Employers Crack down on Social Networking Use."

their agencies ban social media sites.[298] As stated in the *Risks* section, several security experts agree with banning social media in the workplace and believe external social media sites only lead to productivity and security issues.

Though many experts are in favor of blocking social media in the workplace, there are also several that promote workplace usage. The Director of Security Operations for nCircle describes the bans as "a knee-jerk reaction to the serious security risks associated with social media," and further explains they are "not necessarily effective."[299] The pitfalls to social media are obvious, but companies must keep the seriousness of the cultural shift of communication in mind before blocking these sites as there could be repercussions. Ann Cavoukian, Ontario Privacy Commissioner, explained that banning social media is "like waving the proverbial red flag in front of your staff–it's almost a challenge to them to find a way around it."[300] Furthermore, a 2010 Accenture survey of 5,595 Millenials (ages 14-27) from 13 different countries including the U.S. found that 45% of working Millennials (ages 18-27) said they use social media at work, whether prohibited or not.[301] That being the case, employees will waste more time getting around the ban, using social media sites, and covering their tracks than they would if the sites were already open.

Companies that block social media sites at work can also lose top job prospects. Technology is a serious concern for Millennials in the job market as 52% consider state-of-the-art technology an

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[298] "Social Media in Public Sector: Perspectives and Practices." *Market Connections, Inc.* (2009): 1-22. Print.

[299] "Survey: 71% of Companies Able to Monitor Employee Social Media Use." *Vulnerability Management & Compliance Audit Solutions.* 22 April 2010. 20 May 2010. <http://www.ncircle.com/index.php?s=news_press_2010_04-22-Survey-71-percent-of-Companies-Able-to-Monitor-Employee-Social-Media-Use>

[300] Menezes, Joaquim P. "Banning Facebook, Twitter at Work Could Backfire, Says Ontario Privacy Commissioner." *IT Business*. 28 October 2009. 14 April 2010. <http://www.itbusiness.ca/it/client/en/home/News.asp?id=55040>

[301] Ballenstedt, Brittany. "Millennials Ignore IT Use Policies." *Wired Workplace*. 10 March 2010. 12 May 2010. <http://wiredworkplace.nextgov.com/2010/03/millenials_jumping_it_boundaries.php>

important factor when selecting an employer.[302] In order to employ top talent, companies must be able to provide commonly used tools. Those businesses that ban social media are putting themselves at a disadvantage to companies that have learned to leverage them.

Other than losing productivity and job prospects, organizations can actually increase security risks by blocking social media sites. A study of Internet usage and safety in schools within the United Kingdom (UK) showed those that "lock down" their digital assets have lower Internet safety ratings than those with managed systems (only some sites locked down).[303] This is a serious problem because 72% of firms believe that employees' behavior on social networking sites could endanger their business's security.[304] If employees are getting around their company's blocks and are unaware of the best Internet safety practices, they leave the organizations' systems increasingly vulnerable to security issues.

Although there are good arguments for and against blocking social media in the workplace, it is ultimately each individual organization's decision whether to allow their employees to use social media tools. The next sections will discuss the private and public sector policy trends for allowing or disallowing social media.

Private Sector Policy Trends

In the latter part of 2009 the numbers showed that organizations believed blocking social media was the best way to mitigate the risks associated with them. Some that blocked such content even

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[302] Menezes, Joaquim P.

[303] "The Safe Use of New Technologies." *Ofsted Home*. February 2010. 14 April 2010. <http://www.ofsted.gov.uk/Ofsted-home/Publications-and-research/Browse-all-by/Documents-by-type/Thematic-reports/The-safe-use-of-new-technologies>

[304] "Sophos security threat report reveals malware attacks are broadening in 2010."

thought that social media were going to reach the ranks of pornography and illegal activities.[305]

That has not happened in the slightest, as companies seem to be finding uses for these tools. An

nCircle survey of 257 security professionals that was released in March 2010 found that only

39% of companies restrict access to social media sites.[306] This is an impressive decline from

ScanSafe's analysis, finding 76% of businesses banned social media as of August 2009.[307]

America's largest and fastest growing companies use social media tools as well. Researchers at

the University of Massachusetts Dartmouth found "continued steady adoption of blogs and

explosive growth of Twitter among Fortune 500 companies in 2009."[308] Furthermore, a study of

the INC 500 (fastest growing U.S. private companies) shows that 91% of these companies use at

least one social media tool.[309] Social media is of growing importance to the business world.[310]

Although private companies are increasingly allowing and utilizing social media tools, many are

still revising their policies to best leverage the capabilities. Dave Willmer, executive director of

Robert Half Technology explained, "[t]he challenge for companies is balancing the benefits of

social media in the workplace with the risks."[311] Policymakers in companies are trying to figure

out how much freedom they should give employees in order to elicit the best performance.

Robert Half Technology surveyed 1,400 CIO's from companies across the U.S. about the

changes they would be making to their IT policy with regard to social media. The results,

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[305] "Employers Crack down on Social Networking Use."
[306] "Survey: 71% of Companies Able to Monitor Employee Social Media Use."
[307] "Employers Crack down on Social Networking Use."
[308] Barnes, Nora G., and Eric Mattson. "The Fortune 500 and Social Media Study." *University of Massachusetts Dartmouth*. February 2010. 11 May 2010. <http://www.umassd.edu/cmr/studiesresearch/2009f500.cfm>
[309] Barnes, Nora G., and Eric Mattson. "Social Media in the 2009 Inc. 500." *University of Massachusetts Dartmouth*. November 2009. 13 May 2010. <http://www.umassd.edu/cmr/studiesresearch/socialmedia2009.cfm>
[310] Barnes, Nora G., and Eric Mattson. "The Fortune 500 and Social Media Study."
[311] Robert Half Technology. "TWEET THIS, BUT NOT THAT." *Robert Half Technology Media Room*. 13 April 2010. 20 May 2010. <http://rht.mediaroom.com/SocialNetworkingPolicies>

released in April 2010, showed that of the companies that will be changing their social media

policy, many will be implementing stricter controls.[312] Only 7% of the companies surveyed said

they would be more lenient in regards to personal use.[313] Many companies believe they must

exert more control over this use in some way to best leverage the capabilities they offer.

Public Sector Policy Trends

The use of social media in the private sector does not mirror that of the DoD and government.

Figure 4 shows that 23% of federal employees indicated the agency they work for used social

media as of October 2009.[314] Of that percentage, slightly more agencies in the DoD allow the use

of these tools.[315] Of the population whose agencies did not use social media tools, more than half

did not expect their organization to utilize or allow them in the future.[316] According to the

statistics presented in the study "Social Media in Public Sector" in comparison with private

sector studies, DoD and government agencies are behind the curve with regard to allowing social

media in relation to the private sector. It is important to note that "Social Media in Public Sector"

did not distinguish if the study focused on all social media (internal and external) or just the

external tools. This is of importance because internal social media tools are readily employed

within and across the DoD and government for communication purposes (as noted in the *Internal*

Tools section). These means do not include the likes Facebook and Twitter. If internal tools were

excluded from this study, the statistics could show extremely lower use in the public sector.

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[312] Robert Half Technology.
[313] Robert Half Technology.
[314] McCaney, Kevin. "Many Agencies Are Still Anti-social Media." *Governemnt Computer News*. 11 March 2010. 12 May 2010. <http://gcn.com/articles/2010/03/15/numerator-anti-social-media.aspx>
[315] McCaney, Kevin.
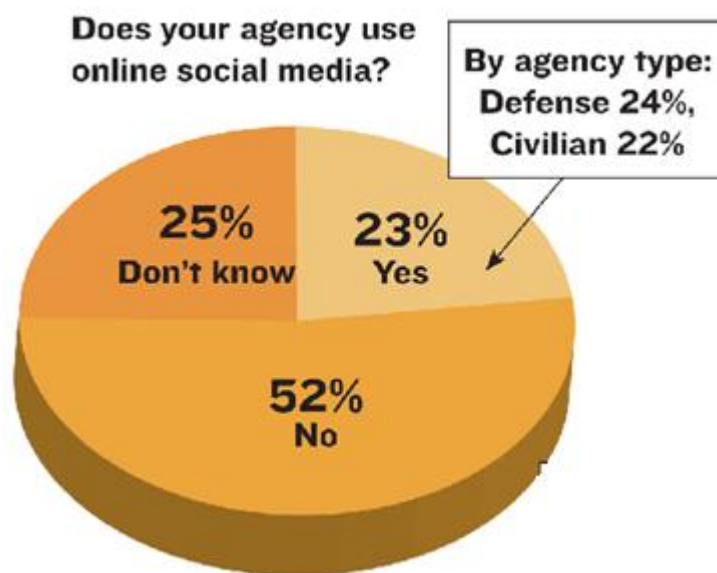[316] "Social Media in Public Sector: Perspectives and Practices."

Figure 4: Federal Agencies Usage of Social Media[317]

Although it seems as though the public sector has not utilized social media as readily as the

private sector, there has been significant grass roots experimentation and increasing official

research into social media by government components and individual personnel.[318] This interest

has led to the rise of Gov 2.0 which describes the new opportunities presented by online

technologies and social methodologies to achieve a more open government.[319] There have been

numerous articles and a few conferences about Gov 2.0, which elicit new government uses of

technology and Internet-based capabilities including social media. With the research and fresh

ideas, the public sector is expected to increase policies that allow social media tools.

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[317] McCaney, Kevin.
[318] Drapeau, Mark, and Linton Wells II.
[319] Lundy, Kate, and Pia Waugh. "Case Study: Public Sphere as a Gov 2.0 Example of Open Government." *Centre for Policy Development*. 1 September 2009. 17 May 2010. <http://cpd.org.au/article/case-study-public-sphere>

DTM 09-026 - Responsible and Effective Use of Internet-based Capabilities

Along with the government, the DoD has made a significant effort to allow social media. The pinnacle of this was the release of DTM 09-026 - "Responsible and Effective Use of Internet-based Capabilities."[320] As stated in the DTM, the policy change applies to everyone in the DoD, referred to as "DoD components."[321] According to Jack Holt, Chief of Emerging Media in the Office of the Secretary of Defense (OSD), the DTM changed the default position of social media in the DoD from "off" to "on."[322] Mr. Holt meant that unless otherwise stated, DoD personnel should be able to access external social media sites (e.g., Facebook, YouTube, Twitter, etc.). This represents a giant step towards greater usage in the military.

Although this policy stated that social media was to be allowed on the militaries' unclassified network, many find it ambiguous in nature after that point. When asked about the ambiguity, Ms. Lindy Kyzer, the Army's Social Media Strategist submitted, "[t]he DTM is the first step of a long process. It is simply a starting point, not the culmination."[323] The memorandum mirrors this statement with the provision for its conversion to a new DoD issuance within 180 days.[324] Furthermore, the DTM gives responsibilities to a number of DoD components for further research of a proper risk assessment, policy creation, and implementation among other

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[320] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."
[321] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."
[322] Holt, Jack. Personal interview. 3 March 2010.
[323] Kyzer, Lindy. Personal interview. 22 March 2010.
[324] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."

responsibilities.[325] It is expected that the new issuance will be less ambiguous and provide better guidance for all the DoD components that must operate under the policy.

Even with the current policies' provision for change in the upcoming months, many components have not wasted time creating a policy for their respective department. As of April 2009 the team has found that the Army, Marines, and Air Force have formulated individual policies based on the DTM. [326][327] This may be in part because of the knowledge that some of these components already had about the uses of social media. In 2008, the Air Force formulated a Blog Assessment to direct their personnel on proper blogging practices.[328] The assessment provided a framework for responding to other people's blog posts about Air Force organizations. The Army was also proactive about social media, releasing Social Media Best Practices (Tactics, Techniques, Procedures) in June of 2009 to guide the tools' usage before there was a policy in place.[329] These are just two examples of forward-thinking endeavors that have allowed DoD components to quickly adapt and enhance the DTM's guidance.

Best Practices

As evidenced by the Air Force's Blog Assessment and the Army's Social Media Best Practices (among other documents referenced throughout this report), the DoD has a wealth of knowledge

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[325] United States Department of Defense. "Directive Type Memorandum 09-026 - Responsible and Effective Use of Internet-based Capabilities."
[326] United States Army. "Army: Responsible Use of Internet-based Capabilities." *Office of the Secretary of the Army* (2010): 1-9. Print.
[327] United States Marine Corps. "Marines: Responsible and Effective Use of Internet-based Capabilities." *Office of the Secretary of the Marine Corps* (2010): 1-2. Print.
[328] Devilla, Joey. "The Air Force's Rules of Engagement for Blogging [Updated]." *Global Nerdy*. 30 December 2008. 13 June 2010. <http://www.globalnerdy.com/2008/12/30/the-air-forces-rules-of-engagement-for-blogging/>
[329] United States Army. "Social Media Best Practices (Tactics, Techniques, Procedures)." *Online and Social Media Division* (2009): 1-21. Print.

already present to aid in creating the new issuance of the DTM set to be released August 2010. It is important that the officials shaping the new policy consider the work that has been done and best practices that have been established internally and externally (i.e., private sector) as they write the issuance. This section includes a non-exhaustive list of best practices from the public and private sector, as well as from social media consultants.

Experts referenced the Intel Corporation as a company that others can use to benchmark their social media policy.[330] Though they have a great policy and guidelines, the best practice that the military can take away from this company is the way they created it. To form guidelines, processes, strategies, and skill-building courses, Intel created a cross functional team of experts called the Social Media Center of Excellence.[331] The team worked together to craft the necessary guidelines while promoting balance by having people from various departments. Steve Radick, Social Media Consultant at Booz Allen Hamilton, also said it was important to have employees from different areas work on the social media policy because it enables everyone's voice to be heard.[332] This, in turn, creates a well-rounded and better-accepted policy.[333]

When creating a lasting social media policy, it is important that it is principle-based rather than rule-based.[334] This is because the rapidly changing technical environment can quickly make rule-based policies obsolete.[335] The private sector has largely adopted this technique with their social media policies. An example of this is Coca-Cola's January 2010 policy. Their policy is guided

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[330] Meister, Jeanne C., and Karie Willyerd. "Intel's Social Media Training" *Harvard Business Review*. 3 February 2010. 29 April 2010. <http://blogs.hbr.org/cs/2010/02/intels_social_media_employee_t.html>.
[331] Meister, Jeanne C., and Karie Willyerd.
[332] Radick, Steve.
[333] Radick, Steve.
[334] Ross, Joshua-Michéle. Personal interview. 3 March 2010.
[335] Ross, Joshua-Michéle.

by ten principles for company usage and five for personal usage. Examples of these principles include "you are responsible for your actions" and "be conscious when mixing your business and personal lives."[336] These simple sentences give a lot of guidance without specifically saying what to do and what not to do and allow for the policy to grow with the changes that social media will take in the future.

As discussed in the previous section, DoD components have also come up with best practices for usage within their departments. The Army's Social Media Best Practices provides a list of the best ways that blogs, Facebook, Twitter, YouTube, Flickr, etc. can be used.[329] This document also lists the dangers that should be considered by those creating accounts with all these sites. It can serve as a good starting point for DoD umbrella guidelines and its individual components.

A portion of the Army's policy also serves as a best practice to the rest of the DoD. They included a Matrix of Responsibilities, part of which is shown in **Table 3** on the next page.[337] The matrix is a simple summation of the policies listed previous in the nine-page document. It allows personnel to find the title that pertains to them (there are also matrices for Commanders and Organizations Seeking to Establish an External Office Presences (EOP))[338] and quickly understand the points they need to take away. This can increase the likelihood that people will actually read and understand what they need to know from the policy.

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[336] The Coca-Cola Company.
[337] United States Army. "Army: Responsible Use of Internet-based Capabilities."
[338] United States Army. "Army: Responsible Use of Internet-based Capabilities."

Soldiers, Army Civilians and Contractors Affiliated with the Army

Should	Should not
Use Internet-based capabilities to communicate with friends and family during personal time, such as after-duty hours or lunch periods, but must ensure that such contact is of a reasonable duration and frequency.	Allow use of Internet-based capabilities to adversely affect the performance of official duties.
Safeguard classified and sensitive information in all online communications and follow all Information Assurance and Operations Security Regulations (see Army Regulations 25-2, 530-1 and 380-5).	Display official Army seals, logos or other marks on their personal profile on any Internet-based site.
Ensure that all personal opinions stated regarding the Army or Department of Defense are accompanied by a disclaimer (e.g., "This is my opinion and does not constitute an endorsement, opinion or	Use government email addresses to establish personal accounts on Internet-based capabilities or use personal accounts as on official communication

Table 3: Responsible Use of Internet-based Capabilities[339]

Like social media tools, best practices are ever evolving. It is important to continue innovation when it comes to social media policy as well as following what is established now. By taking these best practices into consideration and proactively finding more, the DoD and its individual components will be able create policies that best leverage the use of social media.

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[339] United States Army. "Army: Responsible Use of Internet-based Capabilities."

RECOMMENDATIONS

To take advantage of the benefits provided by the use of social media, the team recommends the DoD and government utilize internal and external social media tools. It will be important to develop and employ technical, behavioral, and organizational security controls for a well-rounded approach to the social media issue. It is important to remember that the issue is not only technically-based, but also introduces behavioral and organizational issues that must be considered as well. The team therefore recommends the following useful and precautionary measures to both benefit from and mitigate the risks of social media tools.

The Role of Users

While social media tools are vulnerable by design, Web 2.0 technologies do not possess malicious intent. In other words, the Web-based applications and services that enable user participation, collaboration, and knowledge-sharing do not threaten online information security and thus are not inherently dangerous. Rather, it is human users who, by sharing sensitive information or using intelligence gathered on sites fraudulently, introduce risks associated with the use of social media tools. The most effective means of mitigating risks associated with social media tools is the education of users. Users must be educated on social media tools, their potential risks, and how they can take an active role in mitigating such security threats. Many of the risks associated with the use of social media tools can be avoided if users know how to safely engage in such behavior.

The emphasis placed on training is based on the notion that mitigation efforts must be centered on engaging individual users in ways they find meaningful. Social media sites would be insignificant if humans did not use them to gather and share information, interact with others, and fulfill work-related duties. It is human users who render such tools meaningful and, as stated previously, introduce informational and organizational threats as a result of their activity on social media sites. Furthermore, social media would likely not act as a convenient, efficient medium for the fraudulent introduction of malicious content if there were not so many people using these tools. Those seeking to engage in fraudulent behavior target those tools with the biggest number of users.

Importance of Training in Mitigating Risks

Because many of the risks presented by social media tools stem from human behavior on popular Web 2.0 platforms, emphasis must be placed on the importance of individual people within the DoD in making smart decisions that help to deter or combat the malicious behaviors of other users. Individuals who engage with social media tools, then, are central to the effective mitigation of risks. For this reason, merely having social media policies in place at an organization is not sufficient. The existence of policies does not ensure that personnel will understand them or incorporate them into their daily practices. Only when people are trained to understand the relationship between their online behavior and the introduction of malicious content can they be expected to take more active roles in combating such informational and operational threats.

Before developing a training program, it is important to first consider how individual users view themselves in relation to emerging technologies. Despite the increasingly intimate relationship between humans and the tools that lie at the heart of this report, individuals continue to view themselves primarily in terms of their interactions with others. While Web 2.0 technologies support and promote human interactions, many individuals perceive social media tools as centered on human-to-human rather than human-to-computer relationships.[340] The human-to-human relational model implies that individual users of social media tools view themselves as social actors. Technology supports social actors as they interact with others and gather and share knowledge, but ultimately it facilitates rather than defines human behavior. For this reason, training programs must be developed to guide individuals as they navigate existing and emerging social media tools while also focusing on those human-to-human interactions that users find most meaningful. While technical controls must also be considered in order to fully address the potential threats posed by social media tools, training is crucial to the effective mitigation of these risks. Training is effective because it places individuals at the center of the mitigation process, thus making personnel better able to engage in behaviors that lead to the actualization of benefits and avoidance of risks. According to Mr. Jack Holt, the Senior Strategist for Emerging Media for the DoD, proper training on the use of social media tools leads to "a more nimble and agile force" that possesses the knowledge and skills necessary to engage with and respond to emerging media technologies without compromising security.[341] This statement further illustrates

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[340] Lamb, Roberta, and Rob Kling. "Reconceptualizing Users as Social Actors in Information Systems Research." *MIS Quarterly* 27.2 (2003): 197-236. Print.
[341] Holt, Jack.

the importance of focusing on the human users of social media tools rather than solely on the technical aspects of Web 2.0 platforms.

Transparency

To develop effective training programs, all of the potential risks posed by the use of social media tools must first be considered and understood by the DoD and its various commands. As Mr. Holt stated, organizations seeking to harness the benefits associated with social media sites must not pretend they do not see the problems that accompany the use of these tools.[342] Ignoring real and potentially very serious threats impairs rather than advances training efforts aimed at harnessing the tools' effectiveness while minimizing the risks they present.[343] Furthermore, effective and coherent training efforts cannot be developed until it is clear what risks an organization is attempting to combat. For this reason, organizations such as the DoD must devote a significant amount of time and effort to understanding the risks associated with social media tools and how these risks threaten organizational security and missions. Only when this has been done can the DoD develop effective training programs designed to combat risks and maximize benefits. The training process must, from the beginning, engage personnel at all levels. Just as it is important for an organization like the DoD to first identify the risks it is attempting to combat so that the training process is directed and meaningful, individual users within the organization must also be made aware of these risks. People cannot be expected to change their behaviors until they know what risks exist and understand the relationship between their online practices

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[342] Holt, Jack.
[343] Holt, Jack.

and such threats. Informing users of risks and their role in avoiding such threats makes training substantive rather than theoretical. For this reason, the DoD must bring all personnel into the process so that they more fully understand the objectives behind social media policies and can identify the benefits of training.

To bring personnel into the training process, Dr. Kim De Vries, who studies identity, community, and participatory culture in social networks at California State Stanislaus, said that training should fully explain to users the security risks associated with the use of social media.[344] People are more receptive to training when they know the reasons behind a policy and understand their role in mitigating the risks involved with social media. As stated by Holt, "Transparency promotes responsibility."[345] The more integrated personnel are into the training process, the more likely they are to take an active role in engaging in smart behavior. Furthermore, transparency encourages and allows personnel to work together in order to identify and develop practices that more effectively harness the benefits of social media tools while minimizing their risks.

Once specific risks have been identified, as they were previously in this paper, focus should be placed on teaching people to exercise better judgment when using social media tools. As Mr. Paul Bove, a digital communications strategist for the Air Force Public Affairs Agency, stated, "A little smarts goes a long way when it comes to online stuff."[346] Risks certainly exist, but, given proper training, users possess the capability to avoid or mitigate such threats to online

[344] De Vries, Kim. Personal Interview. 3 March 2010
[345] Holt, Jack.
[346] Bove, Paul. Personal interview. 25 March 2010.

security. The DoD must fully consider the threats posed by emerging Web 2.0 technologies, but at the same time these risks must not be allowed to overshadow the potential benefits delivered by social media tools when users make smart decisions. Risks should be confronted by addressing their sources, not by eliminating useful tools altogether.

Resistance to Training

One of the challenges faced by those implementing social media education programs is that people view such training as cumbersome and thus resist incorporating new practices into their daily routines. An example that illustrates this point is the introduction of hard surface roads in Rome. According to Holt, these roads drastically affected how communities were built and organized. The roads system connected individuals in increasingly new ways and made communication, transportation, and trade easier. At first, people feared how society would be changed as a result of the introduction of such roads. Ultimately, though, they learned to incorporate this development into their lives and established new and better ways to protect themselves.[347]

The above example is significant because it illustrates both the challenges and benefits associated with introducing new technologies and training guidelines into an existing framework. According to Mr. Ross, many people are tied to their particular functions and are hesitant to engage in training that might affect how they work.[348] Just as early Romans were hesitant to accept a new road system that threatened to radically transform their society, so too are many

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[347] Holt, Jack.

[348] Ross, Joshua-Michéle. Personal interview. 3 March 2010.

people today cautious to fully embrace social media tools and the changes they bring to how humans work and interact with others. For this reason, training must teach personnel how to work and think differently while also incorporating safe browsing practices into what they are already doing. Training that ignores user hesitation will breed more resistance and thus fail in encouraging smarter use of social media tools.

Importance of Committed Leaders

Along with general user hesitation regarding emerging social media tools, personnel training is also challenged if leaders within organizations such as the DoD are not committed to education programs. Leaders play an important role in not only developing, but also executing personnel training. When people are trained correctly, the outcome is better. Thus, leadership is key in carrying out the training recommendations outlined above.

Lack of commitment on the part of leaders can stem from a variety of sources. According to Mr. Bove, much of the leadership within and across the DoD does want to make use of social media tools but has not fully developed the tactics that must be involved to make the use of these tools beneficial rather than counterproductive to security and mission goals.[349] However, the desire of leaders to engage with Web 2.0 technologies is not sufficient. Leaders throughout the DoD must couple this desire with clear, actionable policies directed at minimizing risks and maximizing benefits. Furthermore, it is imperative that leaders support the training of their personnel. As Holt stated, those in leadership positions play vital roles in cultivating proper performance in

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[349] Bove, Paul.

order to harvest excellence. Without committed leaders, people will not receive the support they need in order to effectively navigate the ever-changing Web 2.0 world.

Behavioral Recommendations

Principle-Based Approach

In order to foster smart, OPSEC-knowledgeable users of Web 2.0 technologies, training for DoD personnel should be principle- rather than rule-based. There is no such thing as 100% risk reduction, and no training effort can absolutely ensure that social media sites will be free from security threats. However, general principles guide users in making smarter online decisions, thereby decreasing the occurrence of risks associated with social media. These principles represent building blocks for the smarter and more effective use of social media tools amongst personnel.

For non-technical users, information security expert Mr. Nitesh Dhanjani, author of "Hacking: The Next Generation," recommends that principles be kept simple to avoid confusion which breeds resistance.[350] If training is centered too heavily on technical controls and concepts, users who are not familiar with this subject matter may become disinterested and, as a result, avoid taking an active role in mitigating risks.[351] Simple rules-of-thumb, Dhanjani argues, encourage users to make smart online decisions without confusing them with technical jargon they do not

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[350] Dhanjani, Nitesh. Personal interview. 16 March 2010.
[351] Dhanjani, Nitesh

perceive as directly applicable to their lives or work.[352] Rules-of-thumb can be easily shared with

personnel, and simple, guiding principles help users make smarter online decisions without

confusing them with technical language. For instance, personnel might be encouraged to

consider the following before posting on social media sites: "Would you tell your new boss this

on your first day of work?" If the answer is no, users should strongly reconsider sharing the

information in question via social media platforms. Personnel who actively utilize this rule-of-

thumb and ask themselves this simple question before posting online are more likely to make

smart, conscientious decisions than are users who do not carefully consider who might see their

posts. Rules-of-thumb like this one lead users to consider the implications of sharing

compromising or sensitive information, be it personal or professional, online. Technical jargon

that the average user cannot easily understand is not as effective in encouraging smarter behavior

online.

Intel represents a company that has embraced the notion that simple, guiding principles are

essential to any training process. Intel's Social Media Guidelines provides its employees and

contractors with 11 simple rules-of-thumb, or "Rules of Engagement," designed to guide users as

they utilize emerging Web 2.0 platforms. For example, Intel encourages its personnel to "Write

what you know" and avoid discussing topics of which they are not knowledgeable.[353] Intel's

Social Media Guidelines also advises its employees that, "If it gives you pause, pause."[354] This

point reads, "If you're about to publish something that makes you even the slightest bit

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[352] Dhanjani, Nitesh
[353] Intel. "Intel Social Media Guidelines." *Intel.com*. March 2010. 5 May 2010.
<http://www.intel.com/sites/sitewide/en_US/social-media.htm>
[354] Intel.

uncomfortable, don't shrug it off and hit 'send.' Take a minute to review …and try to figure out what's bothering you, then fix it."[355] These rules-of-thumb are useful not only because they provide important OPSEC reminders to users, but also are simple enough that people are likely to remember them and thus incorporate their messages into their online behavior.

Restricted Topics List

Along with simple rules-of-thumb, personnel utilizing social media tools should be provided with constant reminders of the importance of not violating OPSEC. As Mr. Charles Holt said, "OPSEC is not a technical issue. It's a people issue."[356] Although Web 2.0 technologies represent mediums by which sensitive or classified information can be compromised, such OPSEC violations stem from human behavior, not technical intent. Therefore, the DoD should pursue methods by which such behaviors can be shaped and directed towards positive outcomes.

The National OPSEC Program, an organization that identifies, controls, and protects unclassified information associated with U.S. national security programs and activities, has developed a social networking site safety checklist. This checklist details OPSEC issues ranging from what personal information is posted, how much of this information is publically available, and tips on how to recognize malicious versus valid websites. The National OPSEC Program's checklist ends with this important statement to users: "THINK BEFORE YOU POST! Remember, your

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[355] Intel.
[356] Holt, Jack.

information could become public at any time due to hacking, configuration errors, social

engineering or the business practice of selling or sharing user data."[357]

The checklist described above represents a useful resource for those concerned with promoting

OPSEC. However, the team suggests a more vigorous, proactive approach to such a checklist.

Although resources exist, as is clearly illustrated by the work of the National OPSEC Program,

the team suggests that they are most useful in educating personnel when users do not have to

seek out the information but rather are presented with OPSEC reminders whenever they sit down

at a computer workstation. In other words, OPSEC reminders should be available and apparent to

all DoD personnel when they utilize government computers to access social media sites.

In order to provide users with constant OPSEC reminders, the team recommends that a

Restricted Topics List be posted next to all workstations that allow access to social media sites.

Mr. Ira Winkler, President and CEO of Internet Security Advisors Group, suggested that "must

never ever" reminders be posted next to workstations that allow access to social media sites so

that users are more likely to remember what they should and should not post online.[358] To be

effective, the team recommends this list must be posted in such a way that personnel can easily

identify and read its content when seated at computer workstations. A Restricted Topics List

would be ineffective if users could easily miss or ignore its presence. The DoD should provide

constant, obvious OPSEC reminders via a Restricted Topics List as a means by which positive,

behavioral habits can be developed by personnel engaging with social media tools.

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[357] "OPSEC And Social Networking Sites." *Interagency OPSEC Support Staff* (2010): 1. Print.
[358] Winkler, Ira.

Peer-to-Peer Monitoring System

Although simple rules-of-thumb and a Restricted Topics List encourage users to adopt training and OPSEC reminders into their daily practices, it is not enough to stop at teaching people how to be smarter users of social media tools. The DoD must also develop and implement a mechanism by which the activities of personnel on such sites are monitored and corrected. Such monitoring is integral in ensuring that training programs are effective in harnessing the benefits of social media tools while mitigating their risks. Monitoring, though, should not be a purely top-down process. Rather, it should be a fluid process by which individual users are encouraged to take part in monitoring for OPSEC violations and making sensitive and confidential information more secure. Thus, the training of personnel will play a huge role in establishing monitoring tactics just as it will in establishing smarter online users.

The team recommends establishing a peer-to-peer monitoring system in order to promote accountability and correct for OPSEC violations. Under such a system, personnel might be grouped together to make monitoring easier and more efficient. Individuals who notice that someone in their group has violated OPSEC or has compromised DoD missions in any way via their use of social media platforms are encouraged to report this to supervisors so that action can be taken to correct this violation and secure sensitive information.

An example of such peer-to-peer monitoring and its success in correcting for a serious OPSEC violation stems from the Israeli soldier instance, discussed in the *Risks* section. A fellow soldier noticed this post and reported the OPSEC violation. The raid was cancelled as a result of the soldier's compromise of sensitive information regarding a military mission. What is significant in

this example, as far as training is concerned, is the role peer-to-peer monitoring played in catching the soldier's OPSEC violation. Had no one seen what the soldier posted on his profile about the raid or reported it, the mission could have been seriously compromised, thus jeopardizing military goals and personnel safety. Furthermore, this example illustrates the great potential of making use of individual personnel to help monitor each others' activity on social media platforms.

While the peer-to-peer monitoring system described above might be resisted by some who view it as overly invasive, in actuality it represents a means by which the DoD can harness behavioral norms. As Mr. Joshua-Michele Ross, a digital business strategy consultant, said, "Social tools follow social rules."[359] What this means is that communities, each of which possess their own distinct behavioral norms, often self-correct. In other words, communities naturally correct members who violate or in some way compromise their behavioral norms. The peer-to-peer monitoring system recommended by the team stems from an understanding of this phenomenon. Social media tools are only useful if they serve the needs of a community without posing too many threats to its norms. When the risks begin to outweigh the benefits, communities will make corrections or abandon the insecure tools altogether. A peer-to-peer monitoring system represents a means by which personnel can correct one another's publically available information and thus deter OPSEC violations which compromise DoD missions.

Furthermore, this type of "buddy system" facilitates the monitoring of personnel activity on social media sites, a task that would be burdensome, if not impossible, for a single individual or

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[359] Ross, Joshua-Michéle.

Command to carry out. Regarding emerging Web 2.0 technologies, it is important that the DoD

put in place monitoring systems that have the capacity to cover the growing number of social

media sites and their users. The peer-to-peer principle discussed here represents a system that

harnesses the many personnel and their potential to correct one another's behaviors on social

media sites.

Organizational Recommendations

Reverse Mentoring Program

An organization that fosters a good mentoring culture and environment attracts talent that prefers

to learn by the day, innovate, contribute, and grow. Mentors have a long and respected place in

the world of work. Usually, older and more experienced mentors provide coaching and serve as

role models for younger employees who turn to them for advice on how to build and manage

careers.[360] However, mentoring is taking on a new dimension as increasingly younger employees

are performing that vital service for their older bosses and associates.[361] Reverse mentoring is a

type of workplace-mentor relationship. The mentor in a reverse-mentor relationship is younger

than his or her mentee with substantially less seniority in the organization.[362] Conversely, the

mentee is the older of the two and is well-established in his or her position within the company.

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[360] Greenwood, Ramon. "Career Advice: Reverse Mentoring Is Revolutionizing The Workplace." *Secrets of the Job Hunt Career Podcast.* 4 November 2009. 28 May 2010. <http://www.secretsofthejobhunt.com/profiles/blogs/career-advice-reverse>

[361] Greenwood, Ramon.

[362] DiBianca, Molly. "How to Use Reverse Mentoring as a Retention Tool for Gen Y Employees." *Delaware Employment Law Blog.* 29 Oct. 2008. 28 May 2010.
<http://www.delawareemploymentlawblog.com/2008/10/how_to_use_reverse_mentoring_a.html>

Reverse mentoring works in all industries but may demonstrate the most effective results in professional fields where technology is an integral part of the work environment but is not the central focus of the work.[363] This environment is conducive to knowledge sharing between mentor and mentee using the mentor's deeply engrained familiarity and comfort with basic computer skills. More and more companies are formalizing reverse mentoring programs by assigning younger people to act as technology guides.[364] It is the team's recommendation that the DoD implement a reverse mentoring program to help connect social media "experts" with senior level employees who seek to gain a stronger understanding of how social media tools works. Encouraging senior leadership within the DoD to better understand the ever-changing world of social media will aid in the successful integration of social media tools into DoD protocol.

Reward System

To take advantage of the benefits provided by the use of social media, the team recommends that the DoD and government utilize internal and external social media tools. In order to be most successful, the DoD should plan to fund, staff, and reward social media initiatives that promote organizational effectiveness and efficiency. For example, in March of 2010, the Army announced its first internal applications-development challenge.[365] The program, called "Apps for the Army," gives Army personnel the opportunity to demonstrate their software-development skills. Winners will receive monetary awards from a cash pool totaling $30,000 at

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[363] DiBianca, Molly.
[364] Greenwood, Ramon.
[365] Corbett, Peter. "Apps for the Army - a first of its kind app dev contest for .mil." *iStrategyLabs*. 28 February 2010. 7 June 2010. <http://www.istrategylabs.com/2010/02/apps-for-the-army-a-first-of-its-kind-app-dev-contest-for-mil/>

the LandWarNet Conference this August.[366] According to Jeff Sorenson, Army Chief Information Officer, "Soldiers and Army civilians will be creating new mobile and web applications of value for their peers--tools that enhance war fighting effectiveness and business productivity today. And, we're rewarding their innovation with recognition and cash."[367]Applications may tackle any aspect of Army information technology, including distributed training, battle command, career management, continuing education, or news and information distribution.[368] Initiatives like "Apps for the Army" help build a culture that encourages employees to create smarter and faster technical solutions that better meet operational needs.

Technical Security Recommendations

It is imperative that technical security controls are put in to place in order to shape the arrival of social media and its associated risks instead of ignoring its presence or allowing it to run rampant on networks and computers. As described earlier, the use of social media can introduce a variety of technical vulnerabilities that were not necessarily as prominent on web sites before social media. Because of this trend, technical controls need to be implemented in a multifaceted approach.

As the DTM states that Internet-based capabilities including social media sites will be allowed on the NIPRNET, it is important to carefully consider what should and should not be allowed

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[366] Corbett, Peter.
[367] Corbett, Peter.
[368] Corbett, Peter.

based on a site-by-site risk analysis. Different vulnerabilities are present or more significant on some sites compared to others, which should in turn be taken into consideration on whether the entire site, or certain capabilities of the site, should be allowed. For instance third party applications on Facebook introduce a range of vulnerabilities while offering little to no benefits besides entertainment. It is a perfect example of a capability on a very popular social media site that is not worth the risks it introduces.

The Federal Chief Information Officers Council of 2009 (referenced throughout this report) recommended creating acquisition controls in collaboration with external social media sites.[369] Acquisition controls would require the social media site to work in conjunction with the government and DoD in order to implement various controls that are specific for their employees. This would most likely require a fee to be paid to the host of the social media site in order to implement the desired settings and controls. For instance, stronger authentication mechanisms could be required such as more secure passwords that have to change regularly.[370] In addition, monitoring and stronger privacy settings could be enabled for anyone with a ".GOV" or ".MIL" e-mail address domain.[371] This may not be ideal as it could be expensive and is not realistic to implement on the vast number of social media sites. Yet, it is very feasible for some of the most popular sites such as Facebook and YouTube.

Specific physical infrastructure controls should also be implemented in conjunction with allowing access to such sites. Many security experts, most who object to allowing access on the

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[369] Federal Chief Information Officers Council.
[370] Federal Chief Information Officers Council.
[371] Federal Chief Information Officers Council.

NIPRNET, suggest implementing a framework which completely separates networks that allow access to social media. This could be accomplished through virtualization or isolated workstations with Internet access. However, if access is allowed through the NIPRNET without much technical oversight, in the words of Paul Strassman, former Director of Defense Information: "It will be a disaster."[372]

In order to deter a disaster, it may be critical to consider allowing access only through isolated workstations that are separated from the NIPRNET and all other sensitive and classified networks. It could be accomplished by installing internet workstations in certain areas of some locations, such as in cafeterias or break rooms. This could mitigate many threats, such as the spread of malware, strain on bandwidth, and loss of productivity, by requiring employees to only visit these stations during their breaks. It would allow many employees a chance to connect with friends, family, and entertainment by allowing access to the Internet and social media tools through a safer connection (the unsafe connection being through the NIPRNET).

Virtualization is an alternative to isolated workstations, as it can be implemented on every desktop without requiring such a large infrastructure change. Virtualization, as defined by COMAND solutions, is the "method of partitioning one physical server computer into multiple "virtual" servers, giving each the appearance and capabilities of running on its own dedicated machine."[373] It allows for each desktop to run a virtual operating system, also called a virtual machine, which is not on the actual computer but is hosted on a server. Each virtual machine can be erased at the will of the system administrator, which allows the ability to "start fresh"

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[372] Strassman, Paul. Personal interview. 25 March 2010.
[373] "Glossary." *COMAND Solutions*. 15 May 2010. <http://www.comandsolutions.com/resources/glossary.html>.

whenever required, causing no harm to the PC or network. Mr. Strassman recommends two virtual machines be loaded on the same desktop PC which are labeled "blue" and "red"--one being for NIPRNET usage and kept on a private server, the other being for Internet access which is kept on a separate server. The damage that could be distributed on the NIPRNET, such as malicious software that could lead to more serious problems, is then kept at a distance from the NIPRNET.

Overall, as social media is bound to become allowed in some form due to the DTM, it is necessary to look into how to appropriately monitor for misuse of social media tools while on government and DoD networks. Inappropriate use could be an extensive amount of time being spent on sites or inappropriate information leakage on such sites. While this topic was out of scope for the team's project, it is absolutely recommended to be researched in order to define what the legal boundaries are on monitoring of social media sites.

Conclusion of Recommendations

Policies alone are not sufficient to mitigate the risks associated with social media tools. Users must be effectively trained to engage in secure, smart online behavior. While technical controls cannot be ignored altogether, the education of users is fundamental in minimizing the actualization of risks associated with social media sites and maximizing their benefits. According to Mr. Holt, this training must be persistent and pervasive.[374] Effective training is not a one-time occurrence. Rather, it must become incorporated into an organization's culture and goals.

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[374] Holt, Jack.

In order to resonate with non-technical users, training should be principle- rather than rule-based. Simple rules-of-thumb, such as "If it gives you pause, pause," stick with people and guide them in making smart decisions online. A Restricted Topics List containing OPSEC reminders should also be posted next to all workstations that allow access to social media sites. Such a list will act as a constant OPSEC reminder to DoD personnel. Finally, a peer-to-peer monitoring system should be established as a means by which personnel can self-correct and assist in ensuring that sensitive information that might compromise security and DoD missions is not posted on public platforms. Through the establishment of this type of monitoring system, DoD personnel will be more likely to report prohibited content they see online. In a world of limited time and resources, it is imperative that the DoD take advantage of all its personnel that use social media to help monitor the information being shared on social media platforms.

In addition, technical security controls need to be implemented in order to mitigate as many risks as possible. Site-by-site restrictions should be put in place based upon a risk analysis that should be completed for each site that may be allowed on the NIPRNET. Also, it may be beneficial to work with some of the major social media sites in order to contract certain acquisition controls for military and government employees. As many security experts disagree with allowing access to these sites from the NIPRNET, isolated workstations or access to sites through separate avenues is a real and beneficial idea.

The bottom line is that social media usage is encouraged by the DTM. However, it is important to keep in mind the serious risks associated with their use and take these necessary measures to mitigate the risks and leverage the benefits.

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Shannon Benash grew up in Beatrice, Nebraska. She graduated from Missouri Western State University *magna cum laude* in 2006 with a Bachelor's degree in Criminal Justice and an emphasis in Legal Studies. In 2007, Shannon started law school at Washburn University School of Law. While attending Washburn, she was a student editor of the American Bar Association's *Family Law Quarterly* and a selected member of the *Washburn Law Journal*. In 2009, Shannon transferred to the University of Nebraska College of Law and will graduate with a Juris Doctorate in May 2010.

Ty Dilts is in his final semester as a Philosophy major with secondary emphases in History and Political Science at the University of Nebraska-Omaha (UNO). He is the match secretary and a starting prop for the undefeated Greater Omaha Area Touring Side Rugby Football Club. Ty enjoys working out, playing sports, reading and going to local music shows. Next year, he plans

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Chris Fripp is a recent graduate from the University of Nebraska-Lincoln as. He obtained a Bachelor's of Science in Business Administration with a focus in Human Resource Management in May 2010. He was born in Bellevue, Nebraska and has returned to Nebraska by way of Frisco, Texas. Chris is a hard worker that has focused his attention toward becoming the best person he can be, while helping others as much as possible. Chris's inspiration comes from his family who has taught him that anything is possible if you work hard enough for it.

Meghan Obermeyer graduated Summa Cum Laude from the Univeristy of Nebraska-Omaha (UNO) in December 2009 with a degree in Organizational Sociology and minors in Women's Studies and Political Science. During her time at UNO she was highly involved in various organizations including: Chi Omega, Panhellenic Council, Chancellor's Commission on the Status of Women, and Alpha Kappa Delta. She has also spent time interning for the Omaha City Attorney and the Maple Street YMCA. Meghan plans to attend law school in the fall of 2010.

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